City of Fort Pierce

Council Chambers and Conference Rooms

A/V System Design and Pricing

8/23/16

Presented by

Larry Sattler, VP

VIVID A/V Solutions is proud to present the City of Fort Pierce with our design to upgrade the existing Council Chambers and Conference Rooms A/V Systems. Our design includes the highest quality products from the following partners:

- Extron Electronics
- NEC
- Shure
- Apple
- AOC
- Gefen
- iPort
- Belden
- Hitachi
- Da-Lite

Our goal is to provide the City of Fort Pierce with a sophisticated and flexible solution with an easy to use interface. I know our design will provide for many years of rock solid performance. Please see our designs for each room below.

Council Chambers:

Video:

All video inputs/outputs will run through the latest in Extron Electronics line of HD and 4K video matrix switchers. The matrix switcher includes 10 inputs and 8 outputs allowing for complete flexibility in the type of signals and routing combinations. The following video sources will be available for selection:

- Lectern HDMI
- Lectern VGA w/3.5mm audio
- Staff HDMI
- Staff VGA w/3.5mm audio
- Staff fixed PC (HDMI output)
- Control Room fixed PC (HDMI output)
- Document camera (existing VGA output)
- Comcast Cable Box (HDMI output)
- City Logo (Image stored in switcher, no external PC needed)

Each video source will have the ability to be routed independently to either the dais monitors or the large audience monitors.

All of the current displays will be replaced with new HD monitors as follows:

- (10) 19" wide screen dais, lectern and staff monitors
- (2) NEC 65" LED HD audience monitors in the chambers
- (2) NEC 42" LED HD hallway monitors

The hallway monitors will have the ability be turned on/off independently of the chamber monitors.

Audio:

Our design includes new microphone from Shure. The 15" gooseneck microphones includes a base with a push to talk switch. This switch will be setup as a toggle allowing each user to turn their individual microphone on/off. The microphone has an LED ring which will light up Red when muted and Green when active. This will assist the clerk in knowing which microphones are active.

As discussed, we will incorporate the existing JBL monitors at the Dais to allow the room audio to be heard through each speaker.

We have included a new Shure wireless handheld microphone for portable use. We have also included a LED light to be mounted in the room that shows when the system is muted. All of the microphones will be routed through an Extron DSP with built in POTS line for audio conferencing. As discussed, we highly recommend any audio conferencing be done through a conference bridge to avoid hearing the ringing over the speakers.

All of the microphones and the program audio will be routed to the following speakers:

- Chamber speakers
- Hallway speakers
- (2) Audio recording systems at clerk's desk
- Assisted listening system
- Broadcast system
- Existing JBL monitor speakers

Each output will have independent level adjustments allowing for the best audio results on each speaker zone and device.

Control:

Our design includes a 15" touch screen interface for the control room and Clerk's Desk. This interface will control the following aspects of the system:

- Chamber TV Power
- Hallway TV power
- Chamber Speaker Levels
- Hallway Speaker Levels
- Recording system 1 level
- Recording system 2 level
- Assisted listening system level
- Source Switching for Dais Monitors
- Source Switching for Chamber monitors
- Audio Conferencing dialing and levels
- Comcast Box Controls

We have included 1 iPad Air device for control from the Staff location. The iPad at the staff desk will allow for source switching only. The iPad will have a docking station for charging.

Total Cost for Chamber upgrade
$99,281 plus applicable taxes

Conference Rooms (1st, 2nd, 3rd floors)

Our design includes a complete upgrade of the system to allow for digital and analog connections. We have included the following equipment in each room:

- Hitachi 1280 x 800 HD 4000 lumens projector
- Da-Lite ceiling recessed 113" diagonal motorized projection screen
- Extron HD/Analog video switcher with built in scaler
- Extron 7" in wall touch screen
- Extron sharelink wireless presentation gateway
- HDMI cable for laptop connection at the credenza
- VGA w/3.5mm audio for laptop connection at the credenza
- Input for Comacst cable
- Input from council chambers

The in wall 7" touch screen will control the following:

- Projector on/off
- Projection screen up/down
- Source Switching
- Volume Control
- Comcast cable controls

The Extron Sharelink wireless presentation gateway will allow up to 64 users to connect wirelessly to the system using Windows, MAC OS, Android Phones and Tablets and IOS phones and tablets. The system can provide a split screen view to allow up to 4 users to present at the same time.

Total Cost for 3 conference rooms
$58,273 plus applicable sales tax

Rep Order Form (Internal Use Only)

Site of Installation (Ship To)				Bill To:			
Acct No	026287			Acct No		Order No:	19659
Company	City of Fort Pierce			Company			
Contact	Shay Johnson			Contact			
Address	100 North Us Highway 1			Address			
City, ST, Zip	Fort Pierce	FL	34947	City, ST, Zip			
Phone	772-467-3000	Fax		Country		Phone	

Ship Method	PO Number	Order Ship Date	Terms	Sales Rep	Invoice No
		Dec 10, 2015		Larry Sattler	

Part No	Qty	Part Description*	Price	Ext. Price
60-1381-13A	1	DTP CrossPoint 108 4K IPCP MA70 100 Watt 70 V Mono Power Amplifier,LinkLicense	15,500.00	15,500.00
60-1342-02	2	TLP Pro 1520MG Black - Wall	4,925.00	9,850.00
70-1009-32	1	RM 3 Rack Mount Kit for TLP Pro 1520MG	250.00	250.00
60-1487-12	2	DTP T DSW 4K 233 DisplayPort, HDMI, VGA Switcher – 230 feet (70 m)	1,225.00	2,450.00
60-1074-01	1	RGB-HDMI 300 A RGB and Stereo Audio to HDMI Scaler	650.00	650.00
60-1271-12	2	DTP HDMI 4K 230 Tx	398.00	796.00
60-1271-13	6	DTP HDMI 4K 230 Rx HDMI Rx - 230 feet (70 m)	398.00	2,388.00
60-604-21	1	RSB 123 1U 3.5" Deep Basic Rack Shelf, Gray	50.00	50.00
E655	2	NEC 65" LED monitor	2,780.00	5,560.00
E425	2	NEC 42" LED monitors	860.00	1,720.00
GTB-HD4K2K-148C-BLK	1	Gefen 1 x 8 HDMI DA	650.00	650.00
40289	2	3m SonicWave® HDMI® to DVI-D™ Digital Video Cable M/M - In-Wall CL2-Rated	85.00	170.00
40291	3	7m SonicWave® HDMI® to DVI-D™ Digital Video Cable M/M - In-Wall CL2-Rated	90.00	270.00
40292	2	10m SonicWave® HDMI® to DVI-D™ Digital Video Cable M/M - In-Wall CL2-Rated	110.00	220.00
E2060SWD	10	AOC - 19.5" LED HD Monitor - Black	150.00	1,500.00
60-604-11	1	RSB 126 1U 6" Deep Basic Rack Shelf, Gray	50.00	50.00
50625	6	3ft Select High Speed HDMI® Cable with Ethernet M/M - In-Wall CL2-Rated	15.00	90.00
50627	4	6ft Select High Speed HDMI® Cable with Ethernet M/M - In-Wall CL2-Rated	20.00	80.00
56781	4	1ft High Speed HDMI® Cable with Ethernet for Chromebooks, Laptops, and TVs	10.00	40.00
MD785LL/B	2	iPad Air Wi-Fi 16GB - Space Grey	600.00	1,200.00
70223	2	iPort iPad Air Charge Case & Stand	225.00	450.00
WI-22/2-1000SH	2	22/2 Stranded Shielded 1000ft Box - Gray	120.00	240.00
60-1271-12	1	DTP HDMI 4K 230 Tx HDMI Tx - 230 feet (70 m)	398.00	398.00
54402	2	10ft DisplayPort Cable with Latches M/M - Black	35.00	70.00
50226	2	10ft Select VGA + 3.5mm Stereo Audio A/V Cable M/M - In-Wall CMG-Rated	35.00	70.00
WI-CAT6SH-WH	3	CAT6 Shielded- Enhanced 550 MHz 23 AWG Solid 4PR F/UTP CMR, PVC JKT-	278.00	834.00
52030	4	6ft DB9 M/F Serial RS232 Extension Cable - Black	15.00	60.00
PE-SS	1	Miscellaneous Supplies	3,000.00	3,000.00
TRAVEL	20	Travel Expenses	300.00	6,000.00
Labor	5	System commissioning and testing	1,000.00	5,000.00
Labor	12	programming	600.00	7,200.00
Labor	5	Rack equipment installation and wiring	600.00	3,000.00
Labor	1.25	Dais and Staff monitor installation	1,000.00	1,250.00
Labor	1.25	TV Installation	1,000.00	1,250.00
Labor	2	Wiring	1,000.00	2,000.00

PRIVID EYE
Virtually Anywhere

PriVID Eye Security Systems
3300 Corporate Avenue, Suite 116
Weston, FL 33331
Tel: 800-989-6064

Sub Total	74,306.00
Service Contract	
Shipping Cost	
Sales Tax Rate	
Order Total	74,306.00

Order Notes

Authorized by: _____ Date: _____

THIS IS NOT AN INVOICE. DO NOT PAY. FAX 954-797-0453

Rep Order Form (Internal Use Only)

Site of Installation (Ship To)				Bill To:			
Acct No	026287			Acct No		Order No:	19697
Company	City of Fort Pierce			Company			
Contact	Shay Johnson			Contact			
Address	100 North Us Highway 1			Address			
City, ST, Zip	Fort Pierce	FL	34947	City, ST, Zip			
Phone	772-467-3000	Fax		Country		Phone	

Ship Method	PO Number	Order Ship Date	Terms	Sales Rep	Invoice No
Installation		Dec 28, 2015	Due on Receipt	Larry Sattler	

Part No	Qty	Part Description*	Price	Ext. Price
60-1178-10	2	DMP 128 C AT 12x8 ProDSP Proc. w/AEC and Dante	2,785.00	5,570.00
60-1179-10	1	DMP 128 C P AT 12x8 ProDSP Proc. w/AEC, POTS and Dante	2,950.00	2,950.00
8267	200	Belden RG213U (belden 8267 cable)	3.00	600.00
UA830	2	Shure IN-LINE ANTENNA AMPLIFIER FOR REMOTE-MOUNTING, 944-952 MHZ	190.00	380.00
SLX24/SM58-J3	1	Shure INCLUDES SLX2/SM58 HANDHELD TRANSMITTER WITH SM58	660.00	660.00
UA8-572-596	2	1/2 WAVE OMNIDIRECTIONAL ANTENNA FOR SLX4 RECEIVERS, (572-596	35.00	70.00
MX400DP	19	SMALL DESKTOP BASE WITH INPUT, SWITCHED PREAMPLIFIER,	250.00	4,750.00
MX415RLP/N	19	15” SHOCK-MOUNTED GOOSENECK, NO CAPSULE, WITHOUT PREAMPLIFIER	195.00	3,705.00
R185B	19	BLACK CARDIOID CARTRIDGE FOR MX- (MICROFLEX®)MODELS AND WL185	60.00	1,140.00
IP-NG-GS728TP	1	ProSafe Gigabit Smart Switch - Switch - managed - 8 x 10/100/1000 (PoE+) + 16 x	750.00	750.00
MISC	1	Router	100.00	100.00
PE-SS	1	Miscellaneous Supplies	400.00	400.00
Labor	2	Mic installation	1,300.00	2,600.00
Labor	1	Wiring	1,300.00	1,300.00

PRIVID EYE
Virtually Anywhere

PriVID Eye Security Systems
3300 Corporate Avenue, Suite 116
Weston, FL 33331
Tel: 800-989-6064

Sub Total	24,975.00
Service Contract	
Shipping Cost	
Sales Tax Rate	
Order Total	24,975.00

Order Notes

Authorized by: _____ Date: _____

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PRIVID EYE Virtually Anywhere

PriVID Eye Security
ViVID A/V Solutions
3300 Corporate Ave, Suite 116
Weston, FL 33331

tel 954.581.1756 **fax** 954.797.0453 **web** www.privid-eye.com

Site of Installation (Ship To)

Acct No	026287
Company	City of Fort Pierce
Contact	Shay Johnson
Address	100 North Us Highway 1
City, ST, Zip	Fort Pierce / FL / 34947
Phone	772-467-3000 **Fax**

Date: 1/15/2016 **Submitted By:** Larry Sattler

Project: Warranty and Maintenance **Order No:** 19751

Ship Method: Installation

Terms: Due on Receipt

Project Brief

Extended Warranties and Maintenance Options

Extended Warranty

Council Chambers
$4,964 per year for up to 4 total years

Conference Rooms
$2,913.00 per year for up to 4 years

This covers all parts and labor for all equipment installed by VIVID A/V Solutions.
Warranty does not cover vandalism, acts of nature or customer requested changes
Extended Warranties must be purchased at the time of installation

Preventive Maintenance

All Rooms:
$445.00 per visit (can be done monthly, quarterly or semiannually)

Job Notes

Disclaimer: All quotes are valid for thirty (30) days from above date. Equipment and labor prices are subject to change Proposal does not include applicable permit fees or sales tax unless otherwise shown. Unless otherwise noted, **Shipping & Handling** is NOT included in this proposal. This proposal is subject to PriVID Eye's standard terms and conditions, a copy of which is attached and incorporated herein by reference.

Warranty: Ninety (90) days labor, one (1) year parts.

STAY SAFE Maintenance Program
The following programs apply ONLY to warranties purchased before date of installation.

Term	Amount Per Month
Two Years	
Three Years	
Four Years	

Financing Option
- Simple lease program
- **No Money Down**
- $1 Dollar buyout

24 Months:	
36 Months:	
48 Months:	
60 Months:	

Payment Terms:
> 50% Deposit due upon acceptance of proposal.

> Balance due immediately upon completion of project.

Sub Total	
Service Contract	
Est Ship Cost	
Sales Tax	
Total	

Customer Approval: _____ **Date:** _____

THIS IS NOT AN INVOICE - DO NOT PAY FROM THIS PROPOSAL

DMP 128

12x8 ProDSP™ DIGITAL MATRIX PROCESSORS

ProDSP

Advanced Audio DSP with Quick and Intuitive Configuration

- **Six models with 12 mic/line inputs and 8 outputs**
- **Models available with:**
  - AEC - acoustic echo cancellation
  - Dante™ audio networking
  - POTS - analog telephone interface
- **ProDSP audio signal processing:**
  - 64-bit floating point digital signal processing engine
  - Fixed, low latency DSP processing
- **Digital audio expansion port**
- **Automixer with eight groups**
- **DSP Configurator™ Software for fast configuration**

Introduction

The Extron **DMP 128** Digital Matrix Processor is a 12x8 audio mixer featuring Extron ProDSP, automixing, and available AEC plus Dante audio networking and POTS analog phone interfacing. The DMP 128 Series offers a configuration approach to DSP that simplifies mixing, routing, conferencing, and room optimization. Quick and intuitive configuration using the **DSP Configurator Software** allows the DMP 128 to be installed in very little time, with easy-to-learn adjustments that can be heard in real-time. A digital audio expansion port allows two DMP 128 units to be linked together to expand input and output signal management and routing capabilities. The DMP 128 is ideal for presentation and conferencing applications in boardrooms, courtrooms, and conference centers.

ProDSP

ProDSP is engineered from the ground up using a powerful 64-bit floating point DSP engine to provide very wide dynamic range, plus studio grade 24-bit audio converters with 48 kHz sampling. ProDSP is loaded with powerful, easy-to-configure tools to control level, dynamics, filters, delay, ducking, loudness, and feedback suppression.

Flexible Routing Within the DMP 128

The DMP 128 features 12 mono mic/line inputs, eight with phantom power. These inputs can be matrix mixed into any of the eight output buses to create finely tuned audio zones for the corresponding outputs. In addition, the 12 inputs can be routed to any of the eight "virtual" buses to allow inputs to be processed together as a group, before routing back into the output buses. DMP 128 AT models include FlexInputs to provide the additional capability of processing Dante channels from remote wireless microphones, wallplates, and other sources anywhere on the Dante network, in place of local mic/line inputs 1 - 8. This allows incorporating the full range of DSP processing capabilities, including AEC, for incoming Dante channels.

Expanded Routing Across Two DMP 128 Processors

An expansion port allows any two DMP 128 models to be linked together via a single shielded CAT 6 cable. This allows eight matrix mixes of the inputs, plus eight virtual paths to be sent and received between units, for a total of 16 incoming and 16 outgoing buses. Each bus carries 24-bit/48 kHz high-resolution digital audio.

Automixer

The DMP 128 features an automixer with gated and gain sharing modes for managing up to eight groups of microphone signals. Gating threshold, signal level reduction, and timing parameters are user-adjustable per channel. This allows for fine-tuning to avoid the "chopped" sound characteristic of a traditional automixer when a mic is gated off.

Acoustic Echo Cancellation

The four DMP 128 C models include Extron AEC for conferencing applications. AEC is essential for effective remote room-to-room conversations, ensuring clear, natural communication for all participants. These models include eight independent channels of high performance AEC, as well as selectable noise cancellation. Extron AEC features advanced algorithms that deliver fast echo canceler convergence for optimal intelligibility, even in challenging conditions such as double-talk and the use of wireless microphones.

Dante Audio Networking

Dante-equipped DMP 128 AT models provide scalable audio transport over a local area network using standard Internet protocols. Each DMP 128 AT sends out 24 channels of digital audio and can receive 56 channels over the network. A built-in four-port Gigabit switch also provides direct interconnection of multiple DMP 128 AT processors, AXP 50 C AT, AXP 64 C AT expansion processors and AXI 22 AT D to create larger, cost-effective audio matrixes. Dante technology distributes up to 512x512 audio channels at 24-bit/48 kHz over a single Gigabit Ethernet link, or 48x48 audio channels at 24-bit/48 kHz over a single 100 Mbps Ethernet link with extremely low latency.

ProDSP

The **DMP 128** features Extron ProDSP, a powerful digital signal processing platform based on a 64-bit floating point DSP engine. ProDSP provides an extensive array of digital processing tools for audio system design, configuration, and optimization. The DSP Configurator Software is the user interface to ProDSP for full control and management of the DMP 128 and all of its DSP functions, including gain, dynamics, filtering, delay, ducking, loudness, and feedback suppression. DSP Configurator Software is also used to configure and manage AEC and automixing.

An integral part of the DSP Configurator Software is the Graphical User Environment, which allows for quick and easy visualization of all signal paths inside a single window. Working within this user-friendly environment, an audio system designer or installer can clearly view and adjust all input levels, audio DSP processing parameters, mixing points, and output levels. To simplify these adjustments, SpeedNav keyboard navigation ensures efficient and fast navigation through the Graphical User Environment, using just the keyboard on a laptop.

Highest Quality Converters Plus Floating Point DSP

The DMP 128 features studio grade ADCs - analog-to-digital converters and DACs - digital-to-analog converters using professional level 24-bit resolution and 48 kHz sampling, fully preserving the integrity of the original audio signal.

The processing power of the 64-bit floating point DSP engine allows for simultaneous audio processing algorithms within the same channel, and across multiple channels, without compromising sound quality. Throughput latency – the normal delay of audio signals due to audio processing – is deterministic, with very low overall latency regardless of the number of channels and processes, so that audio is kept in sync with video. This powerful DSP engine also delivers very wide dynamic range to prevent clipping and fully maintain signal quality.

Fixed Yet Flexible DSP Architecture

The DSP Configurator Software features a fixed layout of DSP processing blocks for each input, output, and virtual bus. Each block in the Graphical User Environment represents a Gain, Dynamics, Delay, Filter, Ducking, or FBS - Feedback Suppression algorithm within the DSP engine. While this architecture is fixed, each block offers flexible options and customizable parameters. For example, the Filter block contains several selectable filters, each of which can be customized as high pass, low pass, bass and treble or parametric EQ. Each processing block can be selectively bypassed.

Emulate and Live Modes

The DSP Configurator Software features an Emulate mode, which provides complete audio system design while working offline on a PC. When connected to the DMP 128, Live mode enables real-time control of all settings, file updates, and archiving, plus active metering of all input and output channels. In Live mode, integrators can “push” all or part of a configuration to the DMP 128 from the PC, while preserving the existing file. Emulate and Live modes give audio system designers the flexibility to create an entire project from their PC in advance of installation, and then, once they are on-site, use the same software to provide accurate system setup and final optimization.

EXTENSIVE ARRAY OF DSP TOOLS

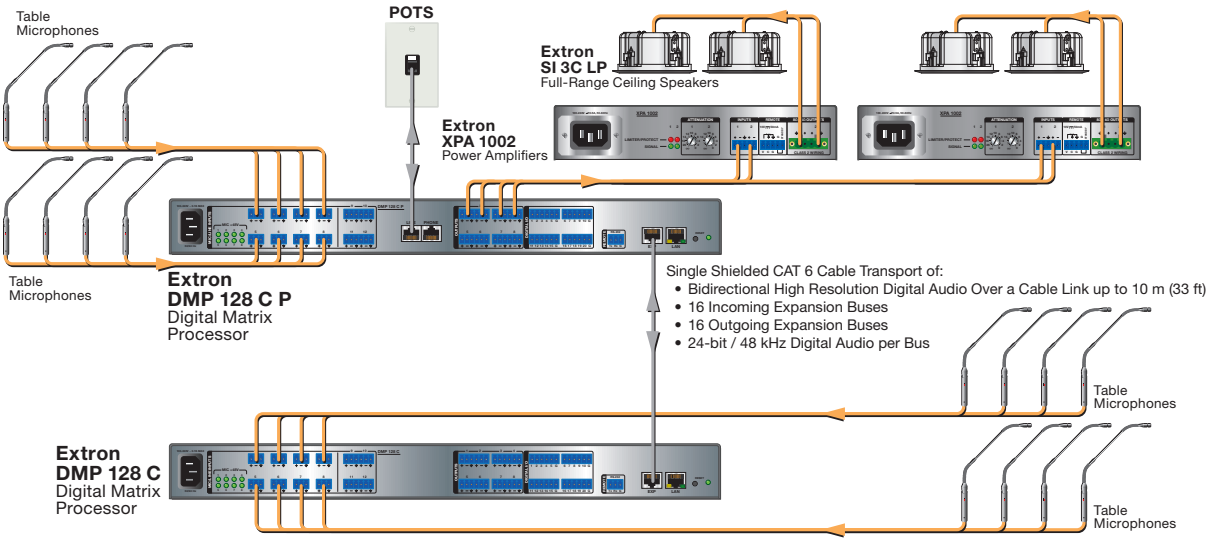
AEC	8 independent acoustic echo cancellers with selectable noise reduction, available on the four DMP 128 C models
GAIN STAGES	4 gain stages across inputs to outputs Gain control at mix points
DYNAMICS	AGC - automatic gain control Compressor Limiter Noise gate
AUTOMIXING	8 groups for any input and incoming expansion bus
DUCKING	1 ducking processor per input with multiple priority levels
LOUDNESS	1 loudness processor per virtual bus and per output
FILTERS	5 filters per input, 3 filters per virtual bus, 9 filters per output; all filters are selectable and customizable High pass Low pass Bass and treble shelving Parametric EQ
DELAY	Up to 200 ms; available on all inputs, outputs, and virtual buses
FEEDBACK SUPPRESSION	Anti-feedback processor for first four virtual buses
PRESETS	32 presets store entire DSP configuration or selected DSP settings

Extron ProDSP includes all the essential DSP tools needed to set up and fine-tune audio systems. These tools, or processing blocks, allow for control and management of gain, dynamics, filtering, delay, ducking, and feedback suppression. Selecting any of these blocks opens a dedicated pop-up window with a range of options and customizable parameters. Multiple windows can be open at the same time. Input and output levels can be monitored at any time by simply opening any of the input or output Gain or Volume windows.

Key Features

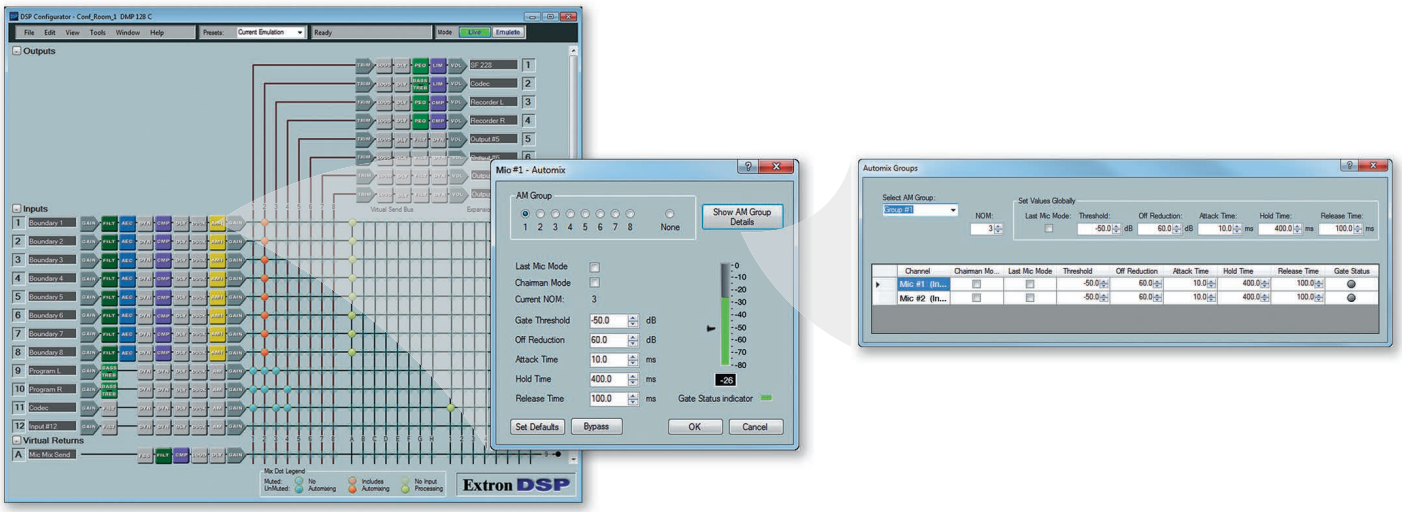
DIGITAL AUDIO EXPANSION PORT

An expansion port allows any two DMP 128 models to be linked together via a single shielded CAT 6 cable. The cable transports 16 incoming and 16 outgoing expansion buses between the processors, allowing individual inputs, matrix mixes of inputs, or virtual paths to be sent to the connected unit. Each bus carries 24-bit/48 kHz high resolution digital audio within the DMP 128. Designers can use this expanded 16x16 I/O channel transport to create audio mixes with advanced I/O and signal management scenarios combining the capabilities of two DMP 128 processors. The expansion port is also available on Extron DTP CrossPoint® matrix switchers. This allows an 8x16 I/O channel transport between the matrix switcher and the DMP 128 to expand the number of available audio inputs for a DTP System, and to offer additional capabilities such as automixing, AEC with DMP 128 C models, and POTS analog phone interfacing with DMP 128 C P models.



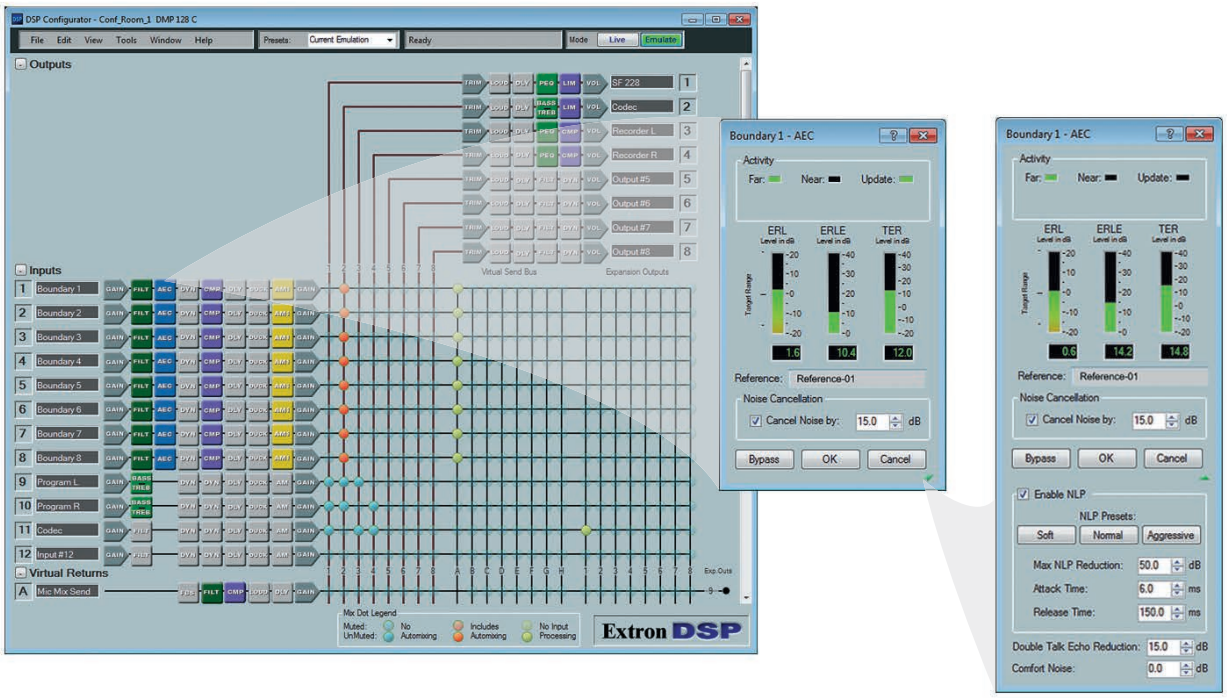
AUTOMIXER

The DMP 128 offers an automixer with gated and gain sharing modes, and includes several advanced features for optimizing microphone management. Multiple trigger protection allows only the microphone with the highest signal to be active while the rest are gated off. The NOM - number of open microphones can be specified to limit the number of active microphones at one time. For a natural sounding mic mix, the automixer also offers a gain sharing mode when the NOM is bypassed, allowing all mics to gate on. A global automixer configuration screen in the DSP Configurator Software enables fast, intuitive management of all microphones and groups in a centralized user interface.

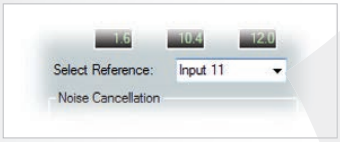


ACOUSTIC ECHO CANCELLATION

In conferencing applications, hearing the talker's voice returned as an echo is disruptive to natural communication. AEC processing prevents far end audio, as reproduced in the near end, from being returned back to the remote talker as echo, ensuring clear, natural conversations. However, AEC processing can be challenged by conditions such as double-talk, when talkers from both ends are speaking simultaneously, and when near end talkers use wireless microphones. Extron AEC delivers fast echo cancelling optimized for these challenging conditions.



The DSP Configurator Software simplifies AEC and noise cancellation setup with a user-friendly interface that provides real-time metering for ERL - echo return loss, ERLE - echo return loss enhancement, and TER - total echo reduction levels. Guided alerts appear whenever ERL is outside of the optimal range for echo cancellation. Optional settings include fine adjustments for NLP - non-linear processing to maximize AEC performance in acoustic environments with significant sonic reflections or reverberation.



AEC Dialog Close-Up
An AEC reference can be individually selected for each of the eight independent AEC processors within the four DMP 128 C models.

Output 1
Output 2
Output 3
.
.
.
Output 8
Input 1
Input 2
Input 3
.
.
.
Input 12
Virtual A
Virtual B
Virtual C
.
.
.
Virtual H

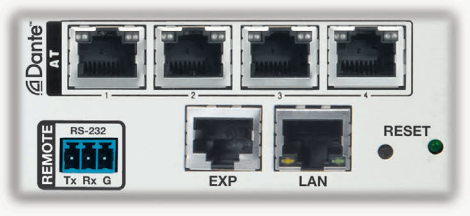
Selecting the AEC Reference

Audio from the far end is reproduced by near end loudspeakers so that listeners can hear the far end talkers. However, this audio can return to the far end via the near end mics, DSP, and codec. To prevent this, AEC processing in the near end analyzes two important signals, the far end audio coming from the conferencing codec or phone input – also known as the AEC reference, and the same audio after being played over the near end speakers into the acoustic space and picked up by the mics. These two signals are analyzed in order to create and apply an adaptive filter to cancel out the far end audio captured at the mic.

All DMP 128 C models provide the flexibility to select the AEC reference signal at any input, output, or virtual return bus. The AEC reference can be independently selected for each of the eight channels of AEC processing.

Dante Audio Networking

TECHNOLOGY OVERVIEW



Dante technology from Audinate provides digital audio distribution over standard local area networks. Dante allows high resolution audio channels to be transported uncompressed across a switched Ethernet data network using standard TCP/IP protocols, while meeting the stringent quality requirements of professional audio. Dante was built on the IEEE 1588 Time Precision Protocol standard to derive a precise clocking mechanism for synchronization. As a result of this, latency of 1 ms is maintained across 10 network switch hops using Dante in a Gigabit Ethernet network. Digital audio signals are converted to packets at the edge of the network, then processed and transported to other Dante enabled devices.

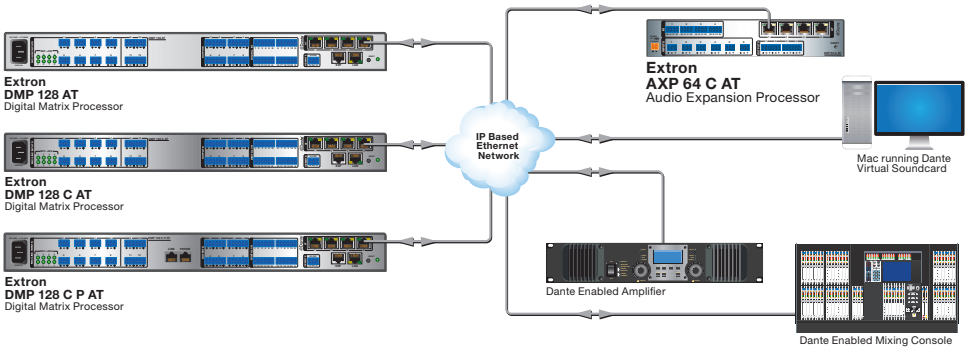
A network with Dante enabled devices can be shared with ordinary data traffic such as e-mail. Audio channels can be transported as unicast or multicast to make the most efficient use of available bandwidth.

With Dante, DMP 128 AT processors and AXP Series audio expansion processors can share multiple channels of high resolution digital audio with each other over a local area network. They can be directly linked to other processors using their built-in four-port Gigabit Ethernet switches or by connecting into a network infrastructure. Dante technology distributes up to 512x512 audio channels at 24-bit over a single Gigabit Ethernet link with extremely low latency.

BENEFITS

An IP network of multiple DMP 128 AT and AXP Series processors provides greatly expanded I/O capacity while simplifying cable requirements for transporting dozens or hundreds of audio channels. An input or audio mix at one unit can be directed to any of the other devices on the network, for further DSP processing, mixing, and output to an audio destination such as a speaker zone.
A DMP 128 AT or AXP Series processor can also be used to share audio channels with third-party Dante equipped products such as multi-channel audio recorders, amplifiers, or mixing consoles without the need to use any of its local audio input or output ports.

- **High channel capacity**
  512x512 matrix of audio channels over standard Gigabit Ethernet networks
- **High quality digital audio**
  Compression free, high resolution 24-bit digital audio transport
- **Extremely low latency**
  - Deterministic latency – in the sub-millisecond range with a guaranteed upper limit
  - Applicable for live sound
- **Easy, low cost cable management**
  Connectivity using standard CATx cable
- **Flexible IT integration**
  - Uses standard Ethernet switches from Cisco, HP, Juniper Networks, Brocade, Avaya, etc. – simplifies new audio integration projects
  - IT managers have the flexibility to use preferred network switch vendor and network management tools
- **Reduces cost of audio upgrades**
  DMP 128 AT processors can be added to an existing IT infrastructure



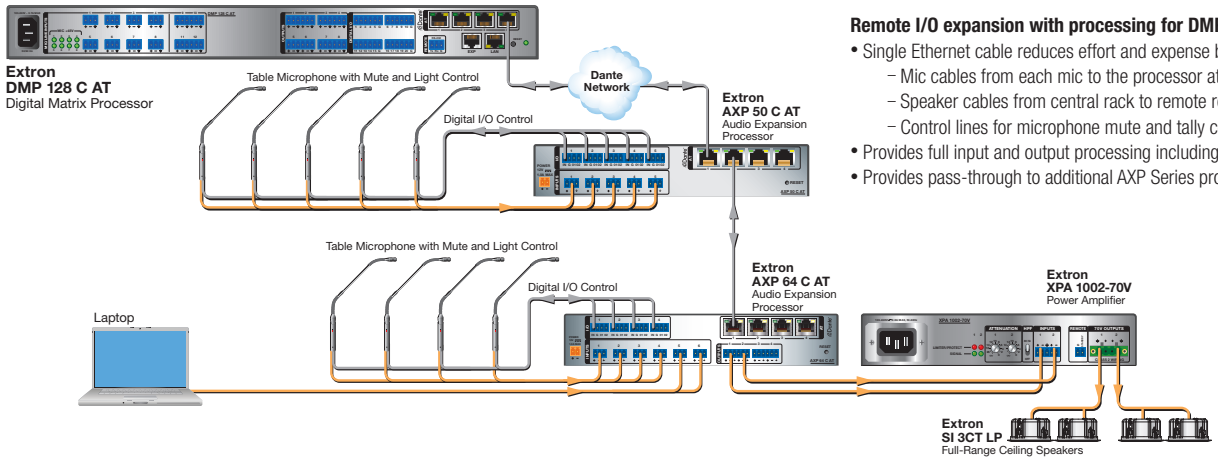
IP-based audio networking with the DMP 128 AT provides inherent scalability, allowing audio systems to be expanded simply by bringing additional processors and third-party Dante enabled devices into the network.

Dante Audio Networking

I/O EXPANSION USING AXP SERIES EXPANSION PROCESSORS AND DANTE

AXP Series audio expansion processors are unique in the industry in offering the flexibility of Dante networking to place inputs and outputs in remote locations with full DSP processing, including AEC, to simplify audio cabling infrastructure and reduce cable costs for integrators. A single Ethernet cable from an AXP 50 C AT or AXP 64 C AT audio expansion processor, or several linked units, to a DMP 128 AT processor in a central equipment rack greatly reduces the effort and expense of pulling one cable for each endpoint.

A sound system designer can incorporate several AXP Series processors to create a large mixing matrix with up to 56 remote inputs and 24 outputs per DMP 128 AT, all with 24-bit/48 kHz audio quality. In addition to using the Dante network, multiple DMP 128 AT and AXP Series units can be linked over their integrated four-port Gigabit switches. This greatly simplifies scalability as well as the cabling infrastructure.

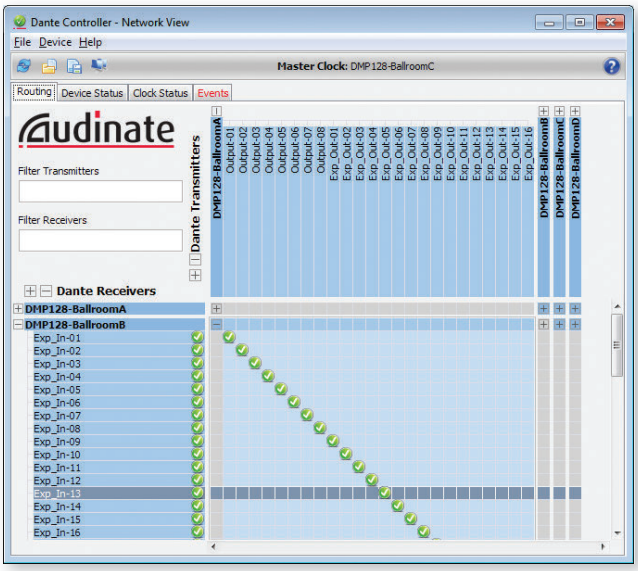


Remote I/O expansion with processing for DMP 128 AT systems

- Single Ethernet cable reduces effort and expense by eliminating:
  - Mic cables from each mic to the processor at the central rack
  - Speaker cables from central rack to remote room
  - Control lines for microphone mute and tally control
- Provides full input and output processing including AEC
- Provides pass-through to additional AXP Series processors

SETUP AND THE DANTE CONTROLLER SOFTWARE

Setting up a network of DMP 128 AT processors is simple and automatic. Once connected, a DMP 128 AT is self-configured with an IP address, and discovered by other processors and Dante enabled devices on the network. A user can route audio channels between devices using the Dante Controller software, which scans the network and provides an intuitive layout of all devices and their input and output channels, including the DMP 128 AT processors and their 56 available inputs and 24 outputs. Making audio routing assignments between devices is very simple with just a few clicks of a mouse.



Features

Powerful Floating Point Audio DSP Engine

The DMP 128 features 32/64-bit floating point audio DSP processing, which maintains very wide dynamic range and audio signal transparency, to simplify management of gain staging while reducing the possibility of DSP signal clipping.

Low Latency DSP Processing

The DMP 128 features very low, deterministic latency from input to output, regardless of the number of active channels or processes. While latency increases in channels with AEC enabled, and marginally with the automixer, overall latency remains low. This keeps audio in sync with video, and prevents distractions to presenters or performers resulting from delayed live audio.

Copy and Paste for Processing Blocks

To help speed audio system design and setup, parameter settings can be quickly copied between individual processing blocks or identical groups of blocks within the Graphical User Environment, using conventional cut-and-paste commands.

Building Blocks Processor Settings

A collection of pre-designed processor settings optimized for a specific type of input or output device, such as microphones and Extron speakers, with preset levels, filters, dynamics, and more. Flexible Building Blocks are available on each I/O strip and allow system designers to fully customize and save their own Building Blocks, further streamlining audio system design and integration.

32 DSP Configurator Presets

Using the DSP Configurator Software, any parameters for DSP processing, levels, or audio routing can be saved as presets. These settings can be saved for the entire system, or any selected group of inputs, outputs, mix points, and DSP blocks.

Device Manager Enables Configuration of Multiple Extron DSP Products

Device Manager in the DSP Configurator Software enables easy configuration of multiple Extron DSP products, including linked or networked DMP 128 processors, by toggling between Graphical User Environments for each unit. Processors can be grouped into folders for organizing as separate rooms or buildings. Settings for multiple Extron DSP products in Device Manager can be saved to a single file.

20 Digital I/O Ports

Twenty configurable digital I/O ports are provided, so that the DMP 128 can be programmed to sense and then respond to external triggers such as mic activation, muting, and recall of presets.

Triple Matrix Design Provides Output, Virtual, and Expansion Routing Options

The DMP 128 employs a triple matrix design that offers substantial flexibility in routing, mixing, and processing audio input sources. The primary output matrix allows any of the 12 inputs to be matrix mixed to any or all eight outputs. If desired, any of the inputs can first be directed into the virtual matrix, which routes the inputs to eight virtual buses, before being mixed back into the output matrix. Virtual buses allow inputs to be processed together as a group. The expansion matrix provides signal routing between a DMP 128 and another DMP 128 or an Extron DTP CrossPoint matrix switcher. The expansion matrix is also used on DMP 128 AT models to distribute and receive audio from the Dante network.

Group Masters

The DMP 128 provides the capability to consolidate gain or mute control throughout the system. Gain or mute controls can be selected and added to a group master, which can then be controlled by a single master fader or mute control. Each group master can have up to 16 members, and up to 32 group masters can be created.

Soft Limits Provide Optimal Group Master Adjustment Range

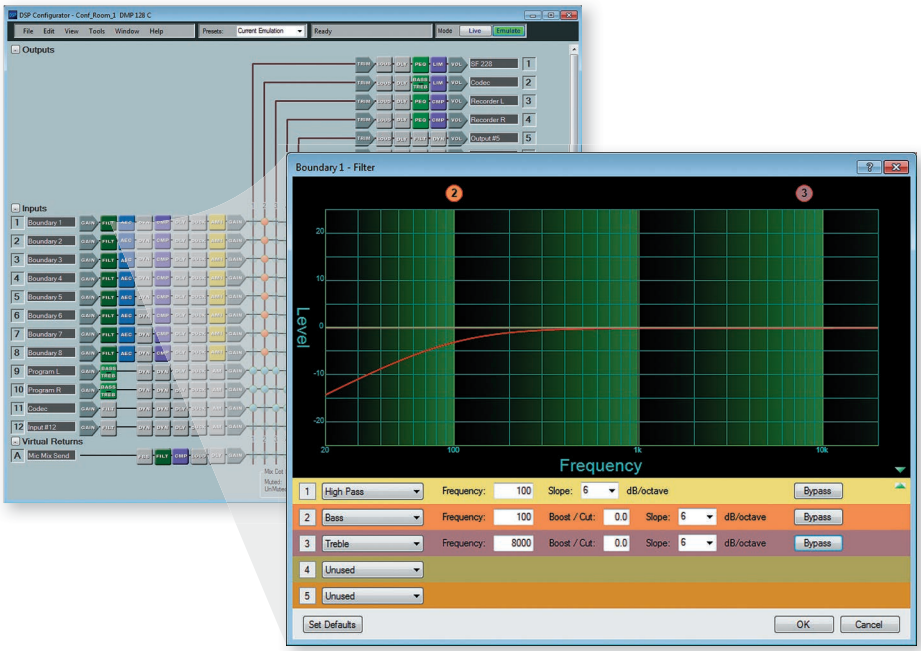
The group master volume range can be limited using soft limits to maintain optimal minimum and maximum levels when using external volume control. This prevents operators from over or under-adjusting levels when using digital I/O or RS-232 control. The DSP Configurator Software provides quick drag-and-drop adjustment of soft limits from the Group Controls screen.

Source and Output Signal Presence and Clipping LEDs

The DMP 128 provides LEDs on the front panel for each input and output, for real-time monitoring of signal presence. A separate LED illuminates as a warning whenever analog signal clipping is detected.

Flexible Control Options

The DMP 128 can be controlled using the DSP Configurator Software and a PC connection to the Ethernet port, the RS-232 serial port, or the USB 2.0 port on the front panel. The DMP 128 can also be controlled through a control system with Extron SIS™ - Simple Instruction Set commands, and by accessing the internal Web pages.



The DSP Configurator Software provides customizable filters at each input, output, and virtual bus for fine-tuning audio system performance.

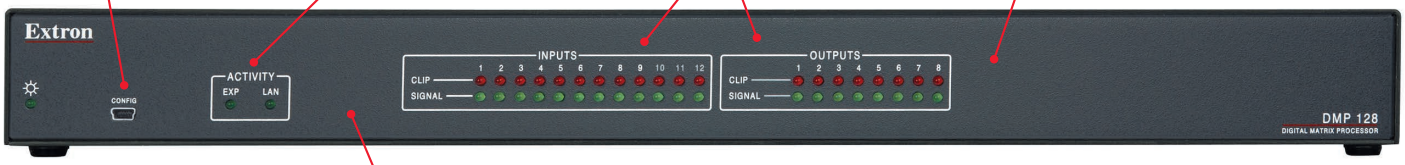
Overview

USB Configuration Port
Enables easy setup and configuration without having to access the rear panel.

LAN and Expansion Port LEDs
Real-time signal activity indicators for the Ethernet and digital audio expansion ports.

Signal Presence and Clipping LEDs
Real-time signal activity and clip warning indicators for all input and output channels.

ProDSP
32/64-bit floating point audio DSP processing for wide dynamic range and signal transparency.



DMP 128 C P AT - Front

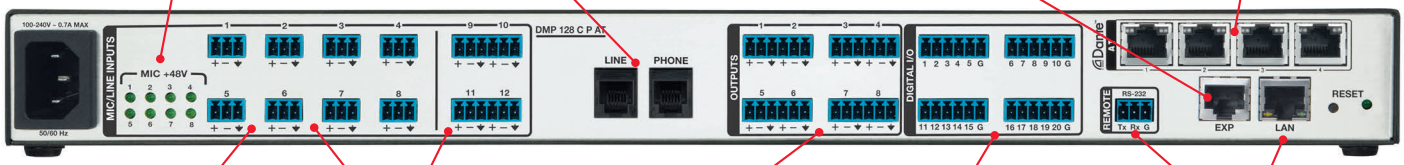
Extron Acoustic Echo Cancellation
DMP 128 C models include eight independent channels of Extron designed and engineered, high performance AEC processing with selectable noise cancellation.

Phantom Power
Selectable 48 V phantom power is available on inputs 1 to 8 for condenser mics.

POTS Interface
The DMP 128 C P and DMP 128 C P AT include RJ-11 jacks for a POTS line and a telephone handset.

Digital Audio Expansion Port
Link a DMP 128 with another DMP 128 or a DTP CrossPoint matrix switcher over shielded CAT 6 cable to share audio channels between them.

Dante Audio Networking and Four-Port Gigabit Ethernet Switch
Create larger audio matrixes over a local area network using standard Internet protocols. The integrated four-port Gigabit Ethernet switch also allows easy connectivity to other DMP 128 AT and AXP Series units.



DMP 128 C P AT - Back

FlexInputs on DMP 128 AT Models
Inputs 1 - 8 on the DMP 128 AT are Flexinputs offering the additional capability to process Dante channels in place of local mic/line inputs.

12 Mic/Line Inputs
Studio grade 24-bit/48 kHz analog-to-digital converters for all inputs fully preserve source signal integrity.

Eight Line Outputs
Studio grade 24-bit/48 kHz digital-to-analog conversion ensures full dynamic range and signal quality at the outputs.

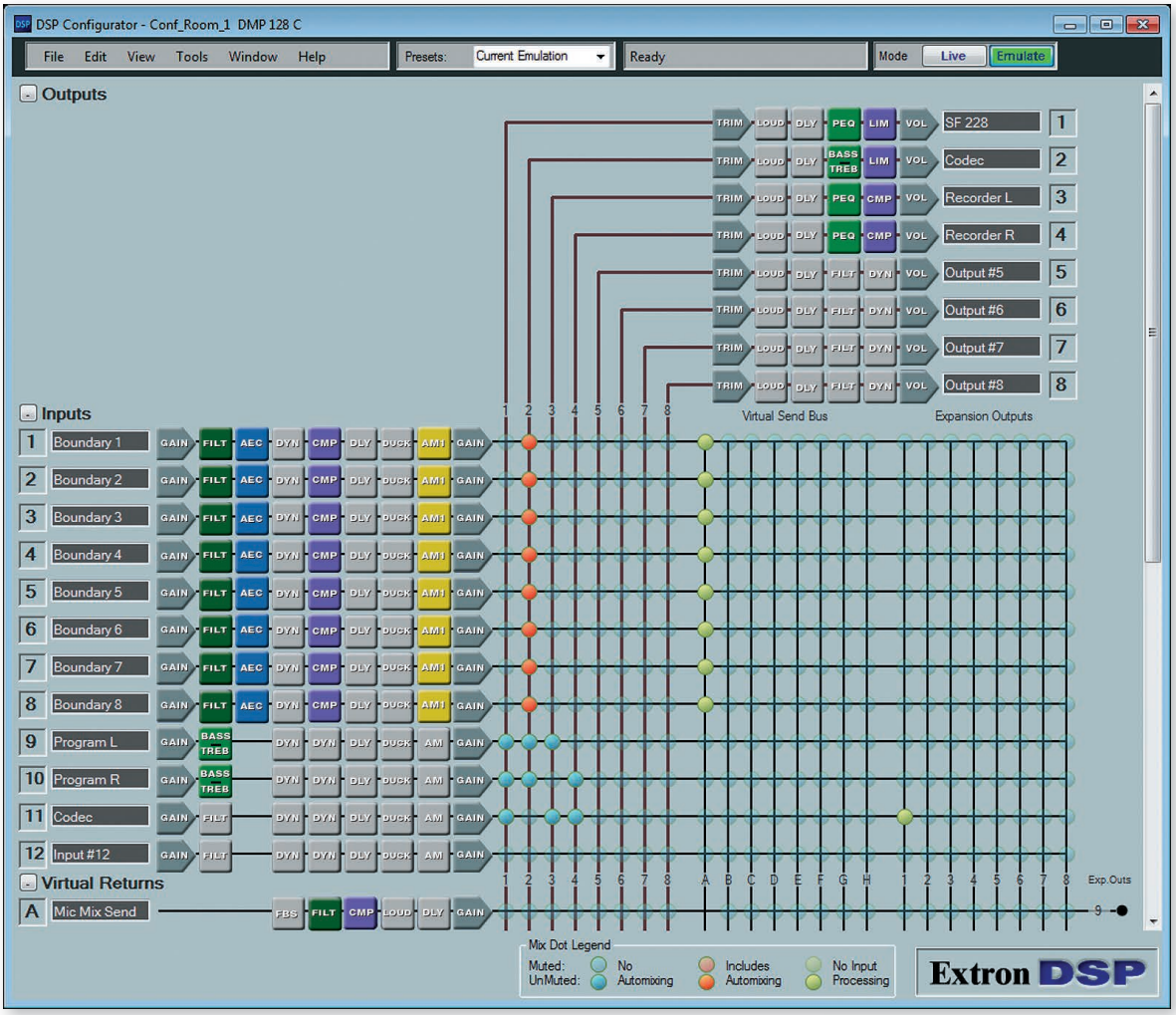
20 Digital I/O Ports
Functions within the DMP 128 can be remotely triggered, or the DMP 128 can trigger devices such as microphone tally lights.

RS-232 and Ethernet control ports
Convenient options are available for controlling and managing the DMP 128, whether from the DSP Configurator Software or a control system.

DSP Configurator

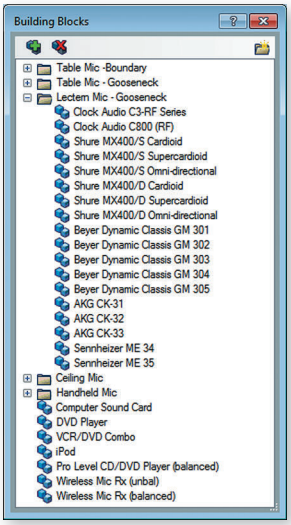
EASY-TO-USE DSP CONFIGURATOR SOFTWARE FOR FAST SETUP

The DSP Configurator Software features a Graphical User Environment that offers a clear view of all input and outputs, audio processing blocks, and mix points for output, virtual, and expansion bus routing in a single window. This allows a designer or installer to quickly view the entire configuration without having to access multiple windows or menus. The system view can easily be customized by hiding or collapsing sections of the Graphical User Environment, including the inputs, outputs, virtual buses, and expansion buses. Individual channels can also be hidden from view.



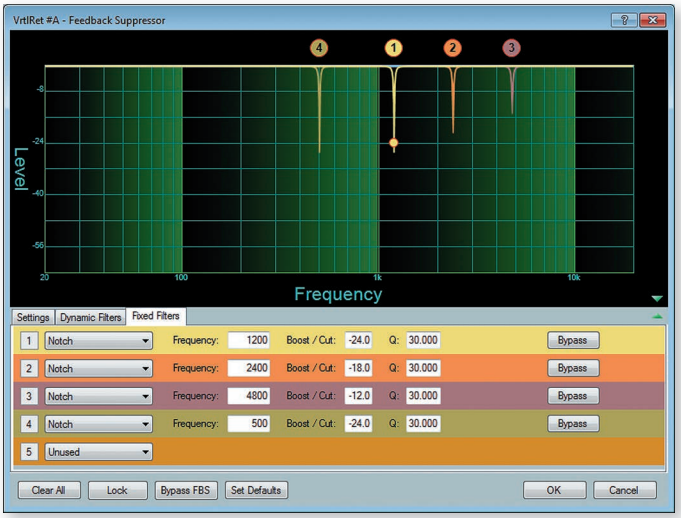
DSP Configurator

1 BUILDING BLOCKS



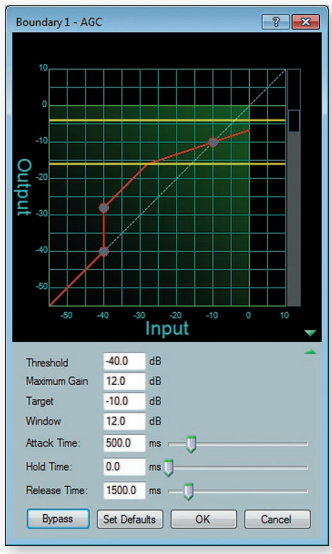
Extron Building Blocks are quick configuration tools for setting up microphones and other sources, speakers, and microphone and program mixes within the processor. Building Blocks provide predetermined gain levels, filters, equalization, and a small amount of protection against signal overload at the output digital-to-analog converters. They can be used to quickly get a sound system up and running, or as a starting point for further system setup and fine-tuning. For additional flexibility, system designers can customize existing Building Blocks or create their own.

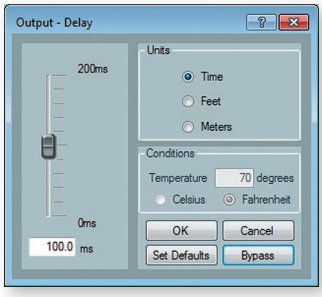
FBS FEEDBACK SUPPRESSION



The FBS - Feedback Suppression Block is used to counteract ringing due to frequencies cycling out of control through the microphone and speakers. The feedback suppression processor for the DMP 128 engages up to twenty notch filters with adjustable Q. Fifteen of the filters are dynamic, and the processor automatically detects and then reduces the ringing. Five additional fixed filters can be adjusted manually or transferred from the dynamic filters.

AGC DYNAMICS & DELAY

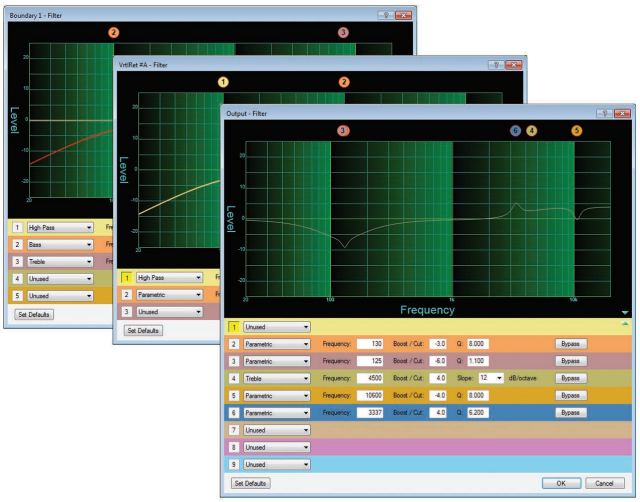




The DSP Configurator Software enables fine-tuning and adjustment of the dynamics of all incoming and outgoing signals. Two Dynamics processing blocks are available for each input. There is one Dynamics block on each virtual bus and output. These blocks can be selected and customized to provide automatic gain control, compression, limiting, or noise gating.

A Delay processing block is available for each input and output. Each delay is adjustable up to 200 ms, and can be selected in units of time, feet, or meters. A temperature parameter is available for distance adjustments.

FILT FILTERING

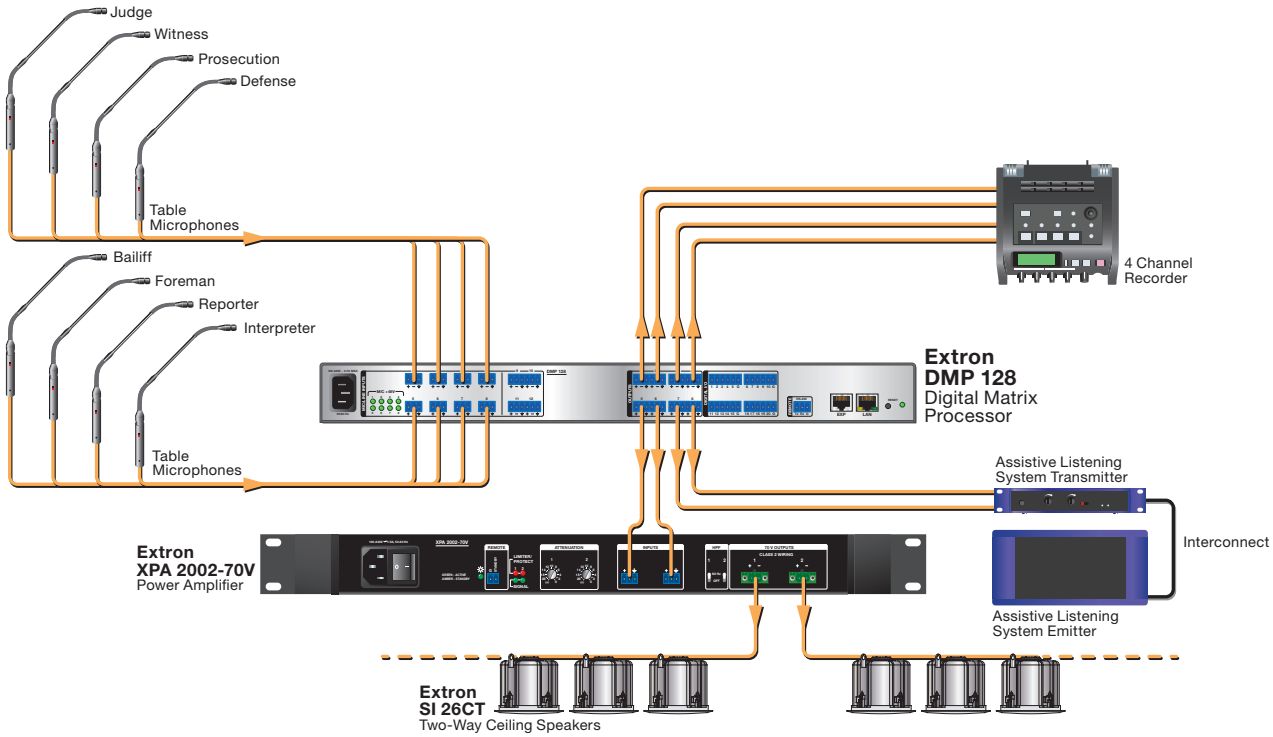


The Filter block offers five customizable filters for each input, three for each virtual bus, and nine for each of the outputs. Each of these filters can be selected as parametric EQ, low pass, high pass, or bass and treble shelving. Standard parameters include frequency, roll-off slope, boost/cut, and Q, depending on the specific filter.

Application

COURTROOM

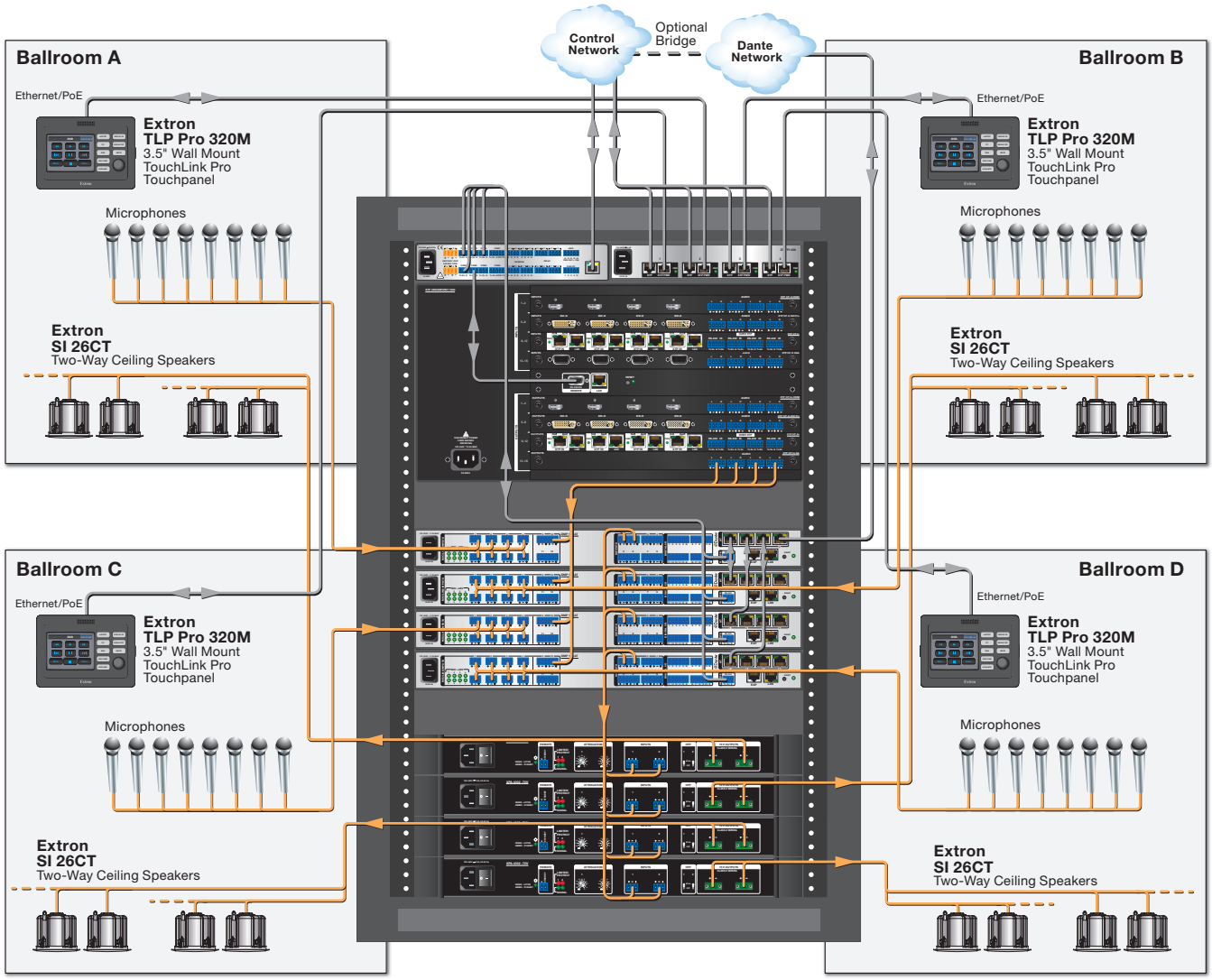
The DMP 128 is ideal for meeting the different functional requirements for audio in a courtroom. The automixer is a particularly beneficial feature in courtroom proceedings, automatically managing microphone levels to maintain proper system gain before feedback and ensuring everything is clearly heard, whether one person or multiple people are speaking. The automixer features a “chairman mode” which can gate off all mics whenever the judge is addressing the courtroom. The DMP 128 includes eight outputs for sound reinforcement as well as an audio recorder and ALS - assistive listening system. Presets can be created with specific mics shut off, outputs to the audio recorder muted, or other functions or settings to support situations such as sidebar discussions between counsel and the judge.



Application

BALLROOM

A large, divisible ballroom system requires the capability to set up and operate AV systems in various applications depending on how the rooms are being configured. The diagram below illustrates a system design for four ballroom subdivisions. A DMP 128 AT processor is assigned to each of the individual room audio systems. With all four processors networked together via Dante, flexible mixing and DSP configurations can be created for a variety of audio applications and room combinations. The automixer in a DMP 128 AT can be used to manage locally connected microphones, and also mics from other rooms. In this application, control and Dante are on separate networks. However, since Dante uses standard TCP/IP, these networks can optionally be bridged together.

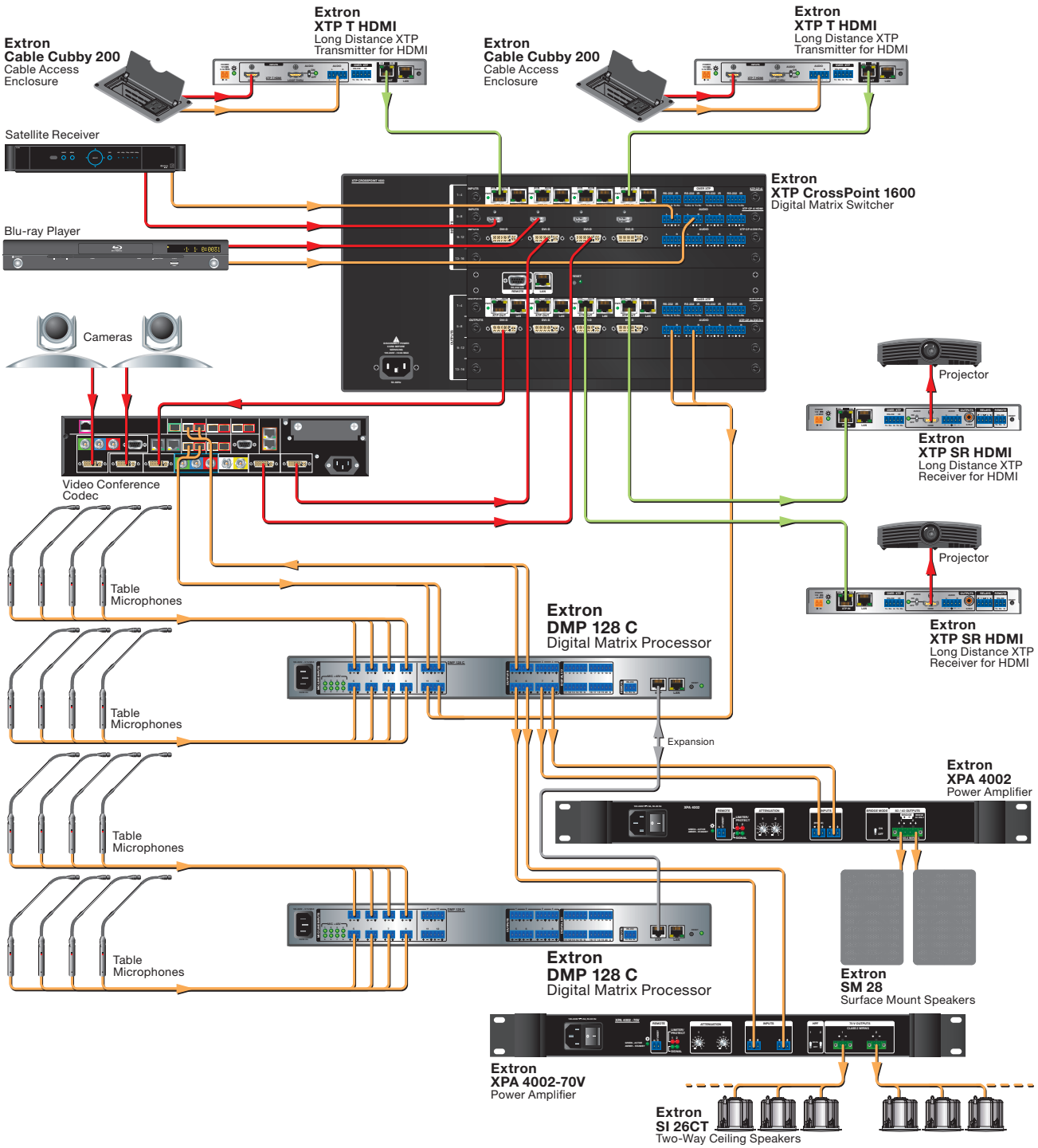


Rack:
(1) Extron IPCP 505 IP Link Control Processor
(1) Extron XTP PI 400 XTP Power Injector
(1) Extron XTP CrossPoint 1600 Modular Digital Matrix Switcher
(4) Extron DMP 128 AT Digital Matrix Processor
(4) Extron XPA 4002-70V Power Amplifier

Application

TRAINING ROOM

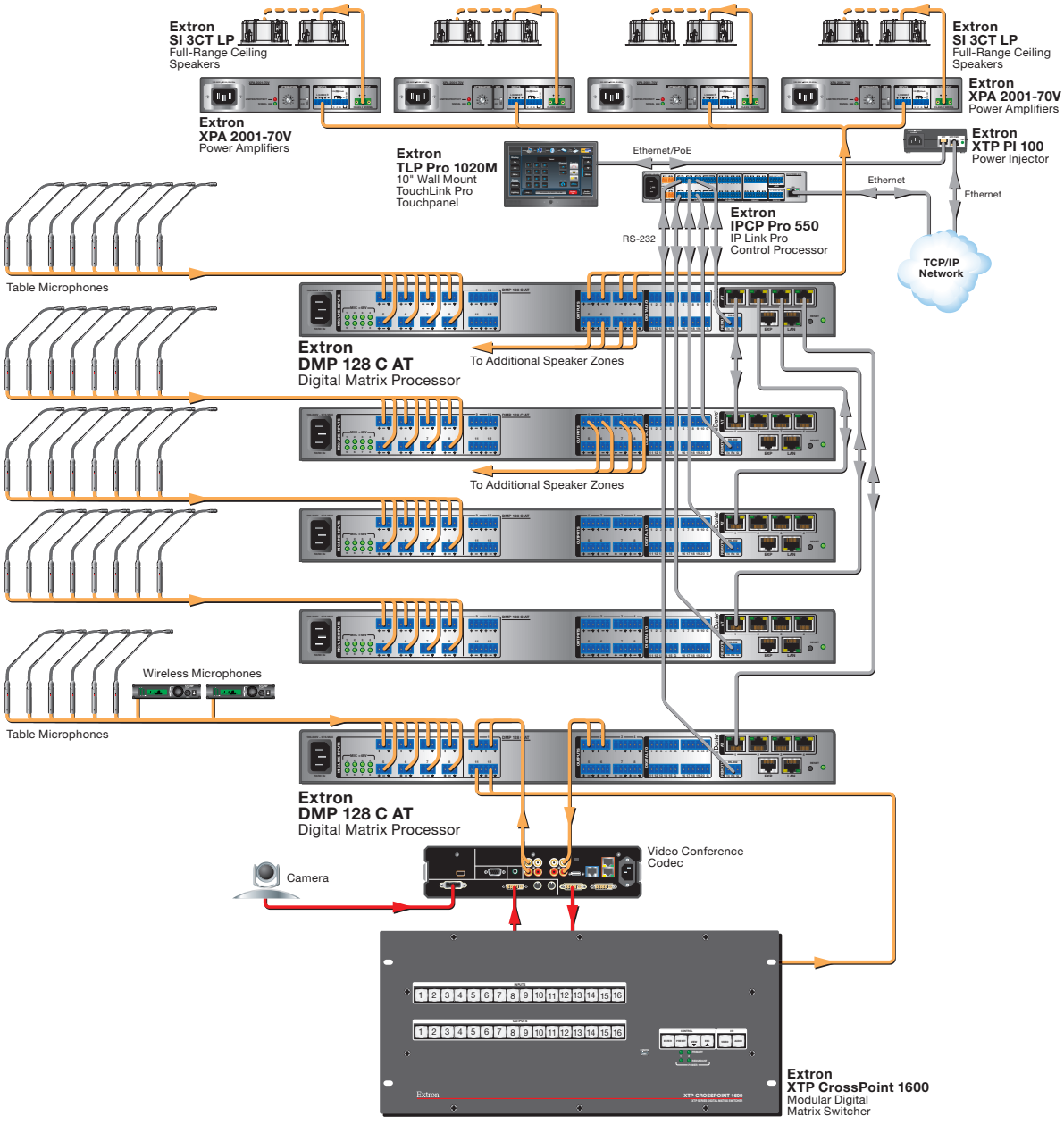
The DMP 128 provides a diversity of audio functions to support the various applications of a training room, including lectures, student participation sessions, and distance learning. Two DMP 128 units handle the 20 total inputs for the instructor microphone, 15 microphones at the workstations, program audio from permanent AV sources and guest devices, and the videoconference codec. AEC processing supports far end talkers in a distance learning session, while the automixer self-manages the simultaneous use of several microphones during student participation. DSP processing for gain, EQ, tone, and more can be customized and fine-tuned for the program and ceiling speaker zones. Presets can be saved and recalled for different sound system functions based on the training room application.



Application

DISTANCE LEARNING ROOM

Distance learning applications require a fully capable audio system to support conferencing. The audio system must deliver quality sound reinforcement, but more importantly, ensure that audio at the far end is absolutely clear and intelligible. The best way to accomplish this is to provide a tabletop microphone at every student location, paired with AEC in the DSP. Audio system designers can specify Extron AXP 50 C AT input expanders at designated locations throughout the room for connecting into microphones. Instead of running mic cables all the way back to the rack, each AXP 50 C AT connects into the main DMP 128 C AT by way of a Dante Ethernet link. Additionally, the compact enclosure of AXP 50 C AT allows inconspicuous placement underneath a table or desk with optional Extron mounting accessories.



Specifications

AUDIO SYSTEM (MIC/LINE INPUT TO LINE OUTPUT)	
Gain	Unbalanced output: -6 dB; balanced output: 0 dB
Frequency response	20 Hz to 20 kHz, ±0.2 dB
THD + Noise	<0.01%, 20 Hz to 20 kHz, at maximum level
S/N	>105 dB, 20 Hz to 20 kHz, at maximum balanced output, unweighted
Crosstalk	<-90 dB @ 20 Hz to 20 kHz, fully loaded
AUDIO INPUT	
Number/signal type	8 mono, mic/line, balanced/unbalanced (with phantom power)
Connector	(8) 3.5 mm captive screw connectors, 3 pole
Number/signal type	4 mono, mic/line, balanced/unbalanced (without phantom power)
Connector	(2) 3.5 mm captive screw connectors, 6 pole
Impedance	>10k ohms unbalanced/balanced
Nominal level	-60 dBV, +4 dBu, -10 dBV adjustable via input gain
Maximum level	+21 dBu at rated THD+N when mic gain is set to 0 dB
CMRR	>60 dB typical
DC phantom power	+48 VDC, ±10% (inputs 1-8) can be switched on or off
AUDIO OUTPUT	
Number/signal type	8 mono, (or 4 stereo) balanced/unbalanced
Connectors	(4) 3.5 mm captive screw connectors, 6 pole
Impedance	50 ohms unbalanced, 100 ohms balanced
Gain error	±0.1 dB channel to channel
Maximum level (Hi-Z)	>+21 dBu balanced, +15 dBu unbalanced
AUDIO PROCESSING	
A/D, D/A conversion	24 bit, 48 kHz sampling
AEC tail length	>200 msec
AEC convergence	up to 60 dB/sec
Noise cancellation	up to 20dB, software selectable
EXP PORT	
Transmission type	Proprietary
Connectors	(1) RJ-45 connector
Inputs	16 channels Rx
Outputs	16 channels Tx
Audio format	24 bit, 48 kHz sampling, uncompressed
EXP cable	Shielded CAT6 up to 10 meters (1 foot cable included)
TELEPHONE PORTS (DMP 128 C P AND DMP 128 C P AT ONLY)	
Frequency response	300 to 3200 Hz
Input gain	-18 to +20 dB in 0.1 dB steps, software adjustable
Output gain	-100 to 0 dB in 0.1 dB steps, software adjustable
Dynamic Range	>60 dB, "A" weighted
AT PORTS (DMP128 AT MODELS ONLY)	
Transmission type	Dante over TCP/IP; AES67 ready
Connectors	(4) RJ-45 connectors, 4-port 1 Gbps switch
Inputs	56 channels Rx
Outputs	24 channels Tx
Audio format	24 bit, 48 kHz sampling, uncompressed
Latency	Deterministic, based on user selections: 0.15 ms, 0.25 ms, 1.0 ms (default), 5.0 ms

CONTROL/REMOTE — AUDIO PROCESSOR	
Serial host control port	1 bidirectional RS-232, 3.5 mm captive screw connector, 3 pole
Baud rate and protocol	38400 baud, 8 data bits, 1 stop bit, no parity
USB control ports	1 front panel female mini USB B
Ethernet host port	1 RJ-45 female
Ethernet data rate	10/100Base-T, half/full duplex with autodetect
Web server	Up to 200 simultaneous sessions 6.5 MB nonvolatile user memory
Program control	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™) Microsoft® Internet Explorer®, Telnet
GENERAL	
Power	Internal Input: 100-240 VAC, 50-60 Hz
Power input requirements	28 watts
Cooling	DMP 128: Convection All other models: Fan, right to left
Mounting	
Rack mount	Yes, with included brackets
Enclosure dimensions	1.7" H x 17.4" W x 9.5" D (1U high, full rack wide) (4.3 cm H x 44.2 cm W x 24.1 cm D) (Depth excludes connectors.)
Product weight	2.8 lbs (1.3 kg)
Shipping weight	4.5 lbs (2 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
DMP 128	12x8 ProDSP Processor	60-1211-01
DMP 128 AT	12x8 ProDSP Processor w/Dante	60-1211-10
DMP 128 C	12x8 ProDSP Proc. w/AEC	60-1178-01
DMP 128 C AT	12x8 ProDSP Proc. w/AEC and Dante	60-1178-10
DMP 128 C P	12x8 ProDSP Proc. w/AEC and POTS	60-1179-01
DMP 128 C P AT	12x8 ProDSP Proc. w/AEC, POTS and Dante	60-1179-10
AXP 50 C AT	5 Input Expansion Processor	60-1325-01
AXP 64 C AT	6 In, 4 Out Expansion Processor	60-1499-01
AXI 22 AT D	2 In, 2 Out Expansion Interface - Decora - Black	60-1517-02
AXI 22 AT D	2 In, 2 Out Expansion Interface - Decora - White	60-1517-03
NetPA 502 AT	Two Channel Amp with Dante - 50 Watts/Ch	60-1500-01
NetPA 1001-70V AT	70 V Mono Amp with Dante - 100 Watts	60-1501-01

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

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DTP CrossPoint 4K Series

SEAMLESS 4K SCALING PRESENTATION MATRIX SWITCHERS

Complete AV System Integration in One Box

DTP SYSTEMS VECTOR 4K SCALING

- All-in-one matrix switcher, scaler, audio DSP with AEC, audio power amplifier, and control processor
- Available in four sizes: 8x2, 8x4, 8x6, and 10x8
- Extron-exclusive Vector™ 4K scaling with seamless switching and logo keying
- DTP® and XTP® signal extension
- Advanced DSP with AEC and expansion capabilities
- 4K matrix switching and scaling with logo keying
- Integrated IPCP Pro 350 control processor and audio amplifier with Pro Audio performance

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Introduction

The industry-leading Extron **DTP CrossPoint® 4K Series** is a definitive game-changer for 4K presentation systems. These highly versatile presentation matrix switchers deliver all of the technologically advanced capabilities necessary to design and integrate advanced AV systems in one box. They incorporate a matrix switcher with 4K inputs and outputs, built-in scalers that are powered by Extron Vector™ 4K scaling technology and support seamless switching, integrated DTP and XTP signal extension, comprehensive audio DSP and AEC capabilities unmatched in the industry, a high performance mono or stereo amplifier, and an advanced control processor for complete AV system control. The internal audio DSP can be linked to an additional Extron DSP for unprecedented audio system scalability. The DTP CrossPoint 4K Series sets the new industry standard for fully integrated AV systems, greatly simplifying system design and installation, and dramatically reducing total cost of ownership.

The DTP CrossPoint 4K delivers all of the core functionality required for today's AV system in a single enclosure that replaces as many as eleven separate components. In addition to saving substantial rack space, the single enclosure makes it easy to standardize on a common system design throughout a facility. The DTP CrossPoint 4K adapts to many different environments in which equipment space may be limited. These fully-featured presentation matrix switchers are highly versatile and ideal for applications where content must be presented on multiple displays. They are also well-suited for multi-purpose rooms and divisible rooms that require flexible system configuration.

Exclusive Vector 4K Scaling

VECTOR 4K SCALING

The DTP CrossPoint 4K Series streamlines integration with the latest 4K sources and displays. All HDMI and DTP inputs accept high resolution signals up to 4K, and these signals can be passed to any output. The DTP CrossPoint 4K incorporates the Extron exclusive Vector 4K scaling engine that is specifically designed with best-in-class image upscaling and downscaling. The Vector 4K engine embodies a new set of image processing algorithms that deliver uncompromising performance with 30-bit precision processing and 4:4:4 chroma sampling. This enables independent scaling up to 4K for each of the DTP outputs, or downscaling for interoperability with lower resolution displays.

High Performance 4K Matrix Switching

The DTP CrossPoint 4K Series has all the standard convenience features common to Extron matrix switchers, including a user-friendly front panel interface with tri-color backlit buttons, I/O memory presets, and more. Matrix switching between the inputs and outputs enables a wide range of design possibilities to meet the audio and video requirements of boardrooms, lecture halls, or other applications with multiple sources and displays. They offer flexible signal routing and reliable digital video switching capabilities. For professional transitions between sources, the DTP CrossPoint 4K offers a range of switching effects on the scaled DTP outputs such as freeze/fade, cut through black, and fade through black. A custom graphic logo may also be inserted into any presentation when using the scaled video outputs.

HDMI Inputs and Outputs, Plus Integrated DTP Transmitters and Receivers

The DTP CrossPoint 4K Series provides HDMI inputs and HDMI outputs for integration with HDMI sources and displays. The DTP twisted pair inputs and outputs offer extraordinary flexibility in how and where AV and control signals can be distributed. They are compatible with DTP Series products, the industry's most complete offering of digital twisted pair transmitters and receivers, which are available in a wide variety of single and multi-input models for furniture and wall-mount applications. These endpoint devices are ideal for installation on a wall, in a lectern, under a table, in a floor box, or near a display. The breadth of DTP endpoints allows great versatility in specifying the appropriate transmitters and receivers to suit the exact needs of the application.

Compatible with DTP 230 and DTP 330 Series Extenders

When the DTP CrossPoint 4K is paired with a DTP 330 transmitter or receiver, video, bidirectional RS-232 and IR signals, and analog audio can be extended up to 330 feet (100 m) over a single shielded CATx cable. With a DTP 230 endpoint, the same signals can be extended up to 230 feet (70 m). DTP endpoints can be powered by the DTP CrossPoint 4K over the same shielded CATx cable used for extending HDMI, DisplayPort, DVI, 3G-SDI, or VGA, plus audio and control signals. This convenience streamlines system design and installation.

HDBaseT-Compatible Outputs

The DTP outputs can be configured for compatibility with HDBaseT-enabled displays to send digital video and embedded audio, plus control signals up to 330 feet over a shielded CATx cable.

Compatible with XTP CrossPoint Matrix Switchers

In addition to supporting DTP endpoints, the DTP CrossPoint 4K can be integrated into an XTP CrossPoint matrix switcher system with digital video and embedded audio, plus control signals extended up to 330 feet. This is ideal for providing connectivity between presentation spaces and a larger, facility-wide system. A DTP CrossPoint 4K in a room can connect into an XTP CrossPoint matrix switcher in a central equipment rack or closet for accessing shared AV sources, or sending local content to several destinations in a facility.

Extron Exclusive Digital Video Technologies for Reliable, High Performance Operation

The DTP CrossPoint 4K Series is HDCP compliant and delivers highly reliable digital switching of HDMI signals. For integration of HDMI sources and displays with plug-and-play simplicity, and to help ensure optimal system performance and dependability, the DTP CrossPoint 4K features three Extron-exclusive technologies: EDID Minder®, Key Minder®, and SpeedSwitch®.

Designed for Full Audio System Integration

In addition to video matrix switching and scaling, the DTP CrossPoint 4K can serve as the central component for full audio system integration. It includes audio switching and breakaway for all video sources, four mic/line inputs that can be matrix mixed into any output, as well as HDMI audio embedding and de-embedding. It also provides highly flexible configuration and processing options for the audio inputs and outputs, and for distributing the audio in a system. Each video input, including the DTP endpoints, can be accompanied by embedded digital audio or separate analog audio.

Audio from the DTP CrossPoint 4K can be output with or without processing, as HDMI embedded audio, two-channel analog audio, S/PDIF digital audio, or amplified with the matrix switcher's integrated mono 70 volt or two-channel stereo power amplifier - MA and SA models. Multi-channel bitstream formats are routed directly to the outputs, without de-embedding or processing.

Built-In Extron ProDSP, AEC, and Automixer

All DTP CrossPoint 4K models include a powerful audio matrix processor with Extron ProDSP™, the same full-featured, high performance audio signal processing found in the Extron DMP 128 digital signal processors. Extron's exclusive ProDSP is engineered from the ground up using a powerful 64-bit floating point DSP engine for a very wide dynamic range and to reduce the potential for clipping. ProDSP also uses studio grade 24-bit audio converters with 48 kHz sampling for audio signal transparency.

The built-in, professional grade DSP delivers many of the capabilities found in a standalone DSP, including a complete set of audio processing tools, highly flexible matrix mixing options, an automixer, AEC, and more. It allows full audio system design, precise optimization and fine tuning, and proper gain structure. The four mic/line inputs can be matrix mixed into any of the eight stereo output buses. These inputs can also be routed to any of the eight "virtual" buses for group processing and then routing into the output

DTP CrossPoint 4K Series matrix switchers are available in 10x8, 8x6, 8x4, and 8x2 configurations.

Introduction

buses. The flexible routing and mixing capabilities allow system designers to create simple or complex signal management schemes to accommodate a wide variety of system application requirements.

The DTP CrossPoint 4K includes four independent channels of high performance AEC - acoustic echo cancellation, and selectable noise cancellation, for conferencing applications. Extron AEC features advanced algorithms that deliver fast echo canceler convergence for optimal intelligibility. The automixer includes gated and gain sharing modes for managing up to eight groups of microphone signals. Setup and optimization is easy with the intuitive DSP Configurator™ Software, which offers fast access to all digital signal processing tools, plus AEC and noise cancellation settings.

Easily Expand with Extron DMP 128 Audio Processors for Larger Systems

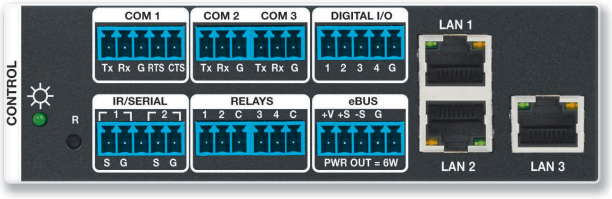
The DTP CrossPoint 4K Series allows unprecedented audio system expansion possibilities with an Extron digital audio expansion port that links the internal DSP to an Extron DMP 128 Digital Matrix Processor. This allows for 16x16 I/O channel transport between devices, and the DMP 128 provides an additional 12 inputs and eight outputs. A linked DMP 128 offers additional capabilities such as POTS analog phone interfacing. Additionally, many unique and scalable system designs are possible when linking a DTP CrossPoint 4K to a DMP 128 AT in a Dante™ network.

Integrated XTRA Series Audio Amplifier Technologies

The DTP CrossPoint 4K IPCP amplifier-equipped models deliver stereo power amplification with 50 watts rms per channel into 4 ohms and 25 watts rms per channel into 8 ohms, or mono 70 volt amplification with 100 watts rms output. The integrated amplifiers feature an Extron exclusive, highly efficient Class D amplifier design and patented CDRS™ - Class D Ripple Suppression, the same core amplifier technologies found in the renowned, ENERGY STAR® qualified XTRA™ Series amplifiers. CDRS provides a smooth, clean audio waveform and a dramatic improvement in signal fidelity over conventional Class D amplifier designs. The DTP CrossPoint 4K IPCP completes a sound reinforcement system with absolutely no compromises in audio performance or power efficiency.

Powerful Integrated Control Processor

DTP CrossPoint 4K IPCP models feature a built-in Extron IPCP Pro 350 control processor. The DTP CrossPoint 4K IPCP delivers high-speed processing and abundant control port capacity for complete,



customizable control of an entire AV system, including all source devices and displays, lighting, window shades, projection screens, occupancy sensing, and more. Select from a full line of Extron TouchLink® Pro touchpanels, available in a variety of screen sizes and form factors, and connect it to the built-in Gigabit Ethernet switch to create a complete AV control system.

As with all Extron control systems, the DTP CrossPoint 4K IPCP is very intuitive and easy to configure with Global Configurator software. The latest version includes powerful, advanced features such as conditional logic, local variables, and macros. Global Configurator Professional adds unprecedented scalability with Controller Groups, a unique feature that allows a DTP CrossPoint 4K IPCP to be combined with additional IP Link Pro processors to create a large-scale control system. DTP CrossPoint 4K IPCP systems throughout a facility, building, campus, or offices worldwide can be monitored and managed using Extron GlobalViewer® Enterprise server-based software.

Extron LinkLicense® is an easy, cost-effective way for people to add even more powerful capabilities to Extron products. Purchasing a LinkLicense for User Interfaces upgrade for the DTP CrossPoint 4K IPCP will enable a mobile device or computer to serve as the primary control interface for the AV system. This expands AV control options, and promotes BYOD - Bring Your Own Device convenience. Another LinkLicense option - LinkLicense for Software Conferencing, transforms traditional software conferencing codecs into customizable applications that enhance all aspects of conferencing and AV system control. LinkLicense is applied per-system, not per-user, and there are no hidden costs.

Reliable, Energy Efficient, and Low Total Cost of Ownership

The unique features and capabilities of the DTP CrossPoint 4K help reduce a client's total cost of ownership. The compact, 3U enclosure houses all essential AV system functions, powers all DTP endpoints, and significantly reduces rack space and power requirements. With the energy efficient, highly reliable power supply and Class D amplifier, the DTP CrossPoint 4K IPCP runs cool to maximize reliability and significantly enhance operating life.

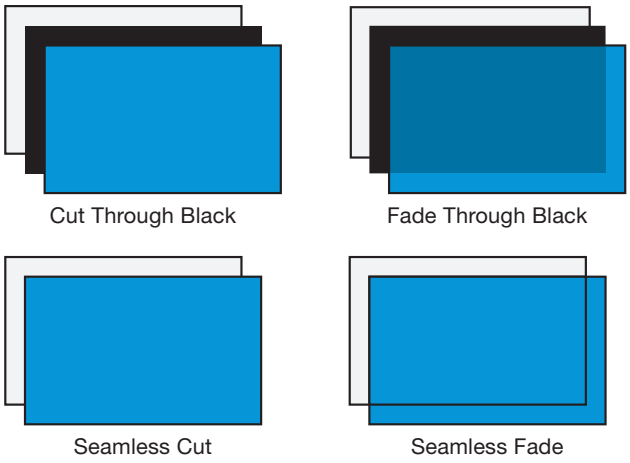
Seamless Switching and Logo Keying

The high performance video scaling within the DTP CrossPoint 4K allows for uncompromised image quality. Driven by Vector 4K scaling technology, the DTP video outputs of these matrix switchers provide powerful processing capabilities, including selectable seamless switching transition effects and logo keying. These capabilities serve the needs of environments where superior quality presentations are crucial.

SEAMLESS SWITCHING TRANSITIONS

Critical presentations do not tolerate video glitches. To ensure glitch-free, professional quality presentations, several transition effects can be selected when switching between video sources. These transition effects are available for each of the scaled DTP video outputs. Effects include:

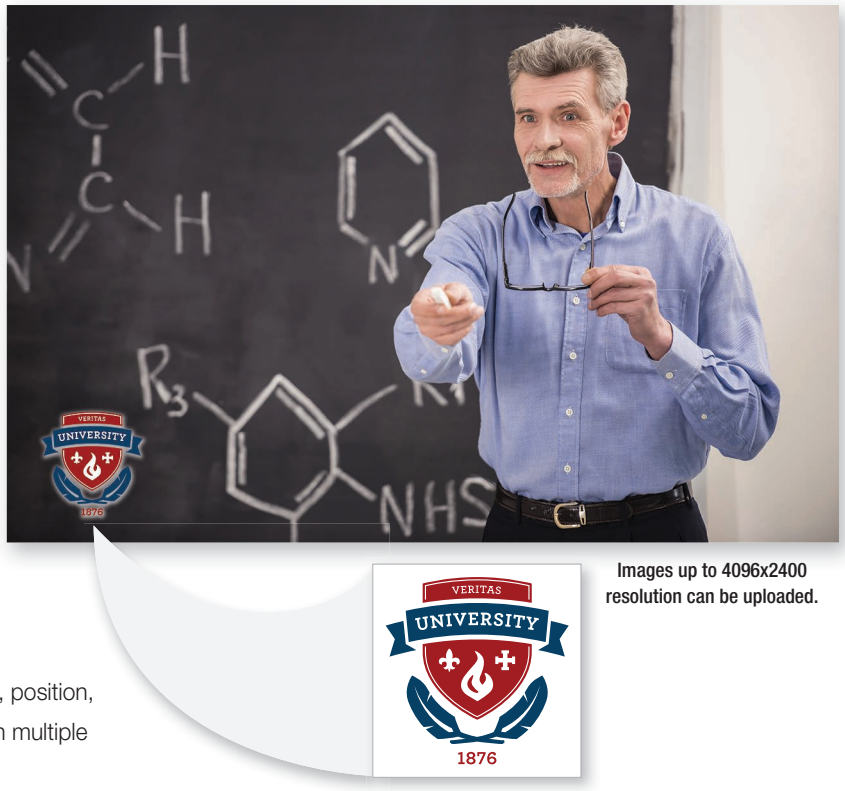
- **Cut through black** – Instantly cut the current input to black, then cut to the newly selected input.
- **Fade through black** – Fade the current input to black, then fade to the new input.
- **Seamless cut** – Freeze the current input video frame, then cut to the newly selected input.
- **Seamless fade** – Freeze the current input video frame, then fade to the new input.



LOGO KEYING

A graphic image such as a company or school logo can be uploaded and inserted on the output video signal to enhance branding and to identify the source of valuable video content. Logo keying is available for each of the scaled DTP video outputs. This capability allows display of foreground images up to 4096x2400 resolution to eliminate blank screens between presentation sessions.

- Logos can be placed anywhere on the active video.
- Uploaded logos can be inserted above live video using either level keying, RGB color keying, or an alpha channel when supported by the graphic file format.
- Logo images in BMP, JPG, PNG, or TIFF graphic file formats are supported.
- 16 logo presets are available to store the logo filename, position, and key settings for quick recall and switching between multiple logo images.



Images up to 4096x2400 resolution can be uploaded.

Extron Exclusive Vector 4K Scaling Engine

VECTOR 4K SCALING

When it comes to delivering unsurpassed image quality, Extron has the proven technology and expertise to do it right. For over 20 years, Extron has been engineering and designing scaling and signal processing solutions, with 24 worldwide patents awarded to date.

Extron Vector™ 4K is the latest generation of our video scaling engines and is specifically engineered for critical-quality 4K imaging. Innovative applications utilizing 4K content and displays continue to emerge, with end users demanding sharp, detailed, and professionally crafted imagery from their systems.

To meet this important criterion, Extron has created a new series of signal processing technologies for upscaling, downscaling, and optimally converting 4K signals or any other source content.

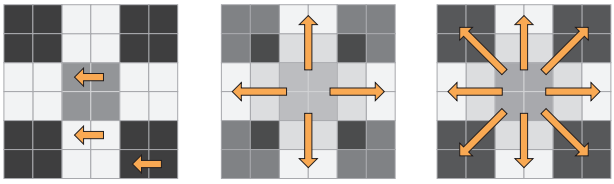
Designing Scaling Technology from the Ground Up

The Vector 4K scaling engine is the result of our extensive R&D operations with in-house engineering expertise in signal processing, image rendering, software engineering, and computing platform integration. With the vast knowledge we've acquired over the years through our research into high resolution video and graphics imaging, we're able to deliver patented image processing technologies that meet our exact specifications for visual performance.

In addition to high performance image processing, Vector 4K incorporates essential integration features that help address frequent AV system design and integration challenges, while simplifying setup and commissioning. Having our own "home-grown" scaling and signal processing technology allows us respond to specific AV integration needs in a timely manner.

Unparalleled Scaling Quality

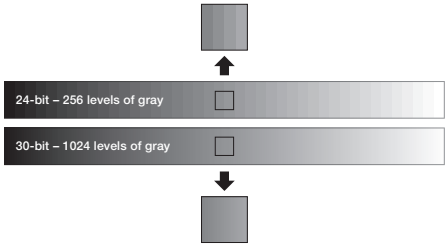
The Vector 4K scaling engine incorporates Extron-engineered, multi-tap, bicubic interpolation, which creates a new pixel by averaging adjacent pixels above, below, to the sides, and diagonally of the new pixel. This produces sharp, accurate output, preserving single-pixel detail as content is downscaled or upscaled.



Nearest Neighbor | Bilinear Interpolation | Bicubic Interpolation

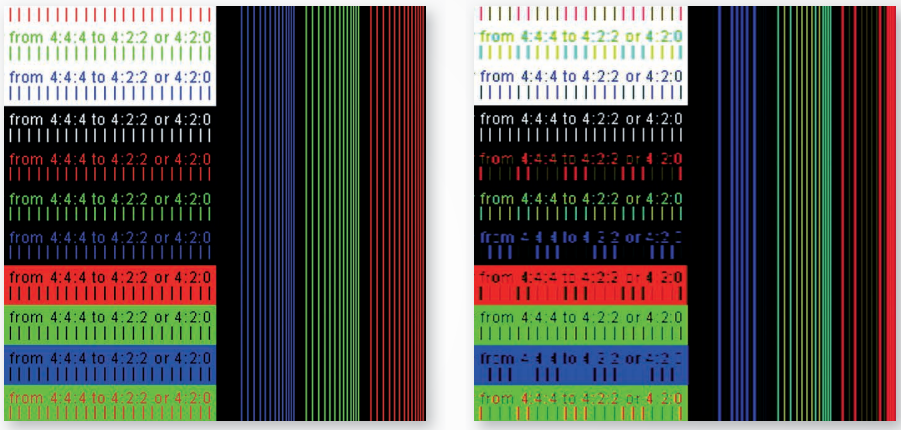
Color Bit Depth

Vector 4K scaling technology processes video at 30 bits per pixel to maximize grayscale and color accuracy. This maintains color fidelity and detail present in native 30-bit source content, while delivering better color accuracy for 24-bit sources. It also ensures compatibility with the BT.2020 color standard for 4K, which has a minimum requirement of 30-bit color resolution.



4:4:4 Chroma Sampling

4:2:2 or 4:2:0 chroma subsampling may be acceptable for processing full-motion video, but can produce color smearing, missing lines, jagged lines, and other artifacts with PC-generated content. Vector 4K scaling processes video and computer graphics in the RGB domain with full 4:4:4 color sampling, which is critical for processing fine image details such as single pixel, colored lines and text in computer content.



4:4:4 | 4:2:2

Motion-Adaptive Deinterlacing

Extron patented motion-adaptive deinterlacing integrates two different processing techniques within each video frame. Blended odd and even fields are best for static content, while line doubling is optimal for areas of motion between fields. To best apply these two modes, Vector 4K scaling utilizes motion estimation at the single-pixel level for the greatest accuracy in detecting dynamic content. Though complex and computationally intensive, this method allows interlaced motion to be averaged to avoid artifacts, while static areas are blended to perfectly preserve the original detail.

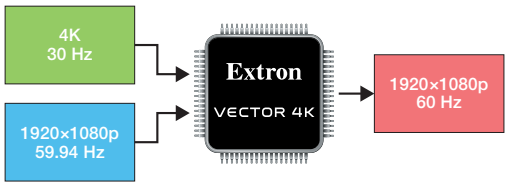
Blend Method

Line Doubling

Extron Motion-Adaptive Deinterlacing

Frame Rate Conversion

Vector 4K scaling includes high performance frame rate conversion that always delivers images free of visual motion artifacts. In addition to eliminating on-screen video tear, frame rate conversion avoids the need for a display to readjust to changes in source frame rates, which eliminates re-syncing and minimizes latency when switching between sources.

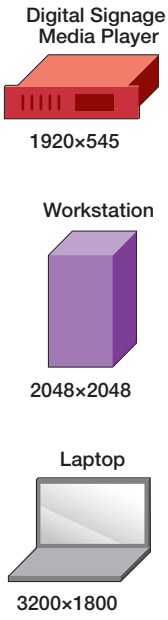


Automatic Film Cadence Detection

Vector 4K scaling features 3:2, 2:2, and 24:1 cadence detection which examines interlaced signals and instantaneously identifies, within a fraction of a second, content that originated from 24 Hz source material. Repeated fields, generated during the 3:2, 2:2, or 24:1 pulldown process, are discarded to recreate the original, progressive 24 frame-per-second content. Frame rate conversion is then applied to the reconstructed 24 Hz content to match the scaler's selected output frame rate.

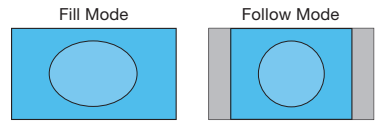
Dynamic Digital Input Detection

Today's evolving computer video standards allow for a wide range of signal resolutions, which may be customized to suit the needs of a particular application or display. These resolutions may be unique to military or medical sources, or the latest consumer laptops or tablets. Vector 4K Scaling technology incorporates dynamic input detection, which analyzes incoming resolutions, and accurately measures the signal parameters to enable precise capture, conversion, and scaling of both standard and unconventional video signals.

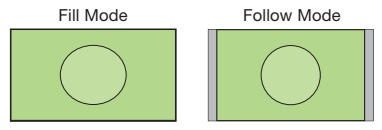


Aspect Ratio Control

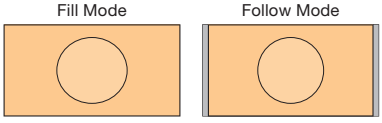
Extron Aspect Ratio Control, featured in all products with Vector 4K Scaling, automatically detects the aspect ratio of an incoming source signal, and provides two user-selectable modes to optimize the content presentation. FOLLOW mode preserves the original aspect ratio of the input signal, while FILL mode provides full-screen output so every pixel of the display contains active content. Additionally, custom aspect ratios can be configured with options for manual or automatic recall of settings.



4:3 Content on a 16:9 UHD Display



16:10 Content on a 16:9 UHD Display



16:9 UHD Content on a 17:9 4K Display

Model Summary

Extron DTP CrossPoint 4K models are all-in-one products featuring 4K matrix switching, scaling, audio DSP with AEC, integrated audio power amplification, and a built-in IPCP Pro 350 control processor. Each model also offers additional integration-friendly features, such as professional transitions between sources, logo insertion on the scaled video outputs, and mirrored HDMI connections for local monitoring of the same digital video that is delivered via shielded CATx cable.

DTP CrossPoint 108 4K

10x8 Seamless 4K Scaling Presentation Matrix Switcher

- 10x8+2 matrix configuration
- Four DTP inputs and six HDMI inputs
- Four HDMI outputs
- Four independently scaled DTP outputs with two mirrored HDMI outputs
- 3U, full rack width metal enclosure

Model	Version Description	Part Number
DTP CrossPoint 108 4K	Preamp Output, w/o Amplifier and Control Processor	60-1381-01
DTP CrossPoint 108 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1381-12
DTP CrossPoint 108 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1381-12A
DTP CrossPoint 108 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1381-13
DTP CrossPoint 108 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1381-13A

DTP CrossPoint 86 4K

8x6 Seamless 4K Scaling Presentation Matrix Switcher

- 8x6+2 matrix configuration
- Two DTP inputs and six HDMI inputs
- Two HDMI outputs
- Four independently scaled DTP outputs with two mirrored HDMI outputs
- 3U, full rack width metal enclosure

Model	Version Description	Part Number
DTP CrossPoint 86 4K	Preamp Output, w/o Amplifier and Control Processor	60-1382-01
DTP CrossPoint 86 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1382-12
DTP CrossPoint 86 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1382-12A
DTP CrossPoint 86 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1382-13
DTP CrossPoint 86 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1382-13A

DTP CrossPoint 84 4K

8x4 Seamless 4K Scaling Presentation Matrix Switcher

- 8x4+2 matrix configuration
- Two DTP inputs and six HDMI inputs
- Two HDMI outputs
- Two independently scaled DTP outputs with mirrored HDMI outputs
- 2U, full rack width metal enclosure

Model	Version Description	Part Number
DTP CrossPoint 84 4K	Preamp Output, w/o Amplifier and Control Processor	60-1515-01
DTP CrossPoint 84 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1515-12
DTP CrossPoint 84 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1515-12A
DTP CrossPoint 84 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1515-13
DTP CrossPoint 84 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1515-13A

DTP CrossPoint 82 4K

8x2 Seamless 4K Scaling Presentation Matrix Switcher

- 8x2+2 matrix configuration
- Two DTP inputs and six HDMI inputs
- Two independently scaled DTP outputs with mirrored HDMI outputs
- 2U, full rack width metal enclosure

Model	Version Description	Part Number
DTP CrossPoint 82 4K	Preamp Output, w/o Amplifier and Control Processor	60-1583-01
DTP CrossPoint 82 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1583-12
DTP CrossPoint 82 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1583-12A
DTP CrossPoint 82 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1583-13
DTP CrossPoint 82 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1583-13A

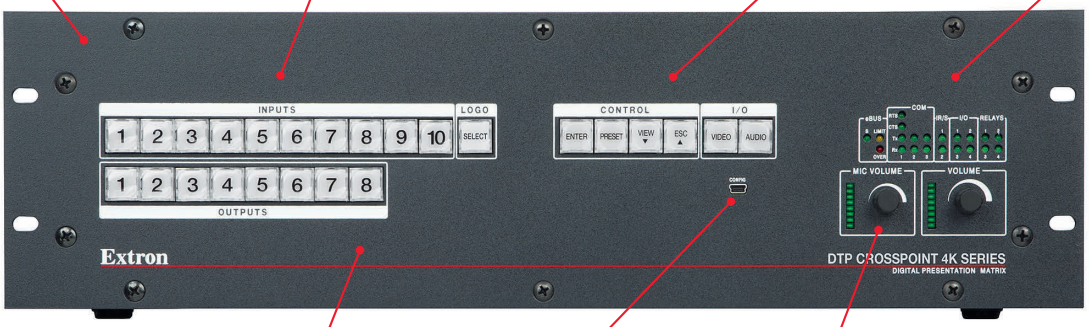
Overview

Tri-color, backlit buttons
The QS-FPC - QuickSwitch Front Panel Controller allows for simple, intuitive matrix switcher operation.

Extron Vector 4K scaling engine
The exclusive 4K scaling engine is specifically designed for critical-quality 4K imagery, with best-in-class image upscaling and downscaling. Scaling and video format conversion are performed at 30-bit precision for signals up to 4K to provide enhanced color accuracy and picture detail.

Flexible video and audio routing options
AV signals can be routed together or independently, including embedded HDMI stereo audio signals.

Complete AV system integration in one box
The DTP CrossPoint 4K IPCP is an all-in-one matrix switcher, scaler, audio DSP with AEC, audio amplifier, and control processor.



DTP CrossPoint 108 4K IPCP SA - Front

HDCP compliant
The DTP CrossPoint 4K is fully HDCP compliant at all inputs and outputs.

USB configuration port
Provides convenient user access for configuring, controlling, and monitoring the matrix switcher

Volume controls
Allow for adjustment of master volume and microphone level, with accompanying LEDs to indicate volume level

Built-in control processor
The DTP CrossPoint 4K IPCP includes high-speed processing and abundant control port capacity for complete, customizable control of an entire AV system, including sources, displays, and room functions.

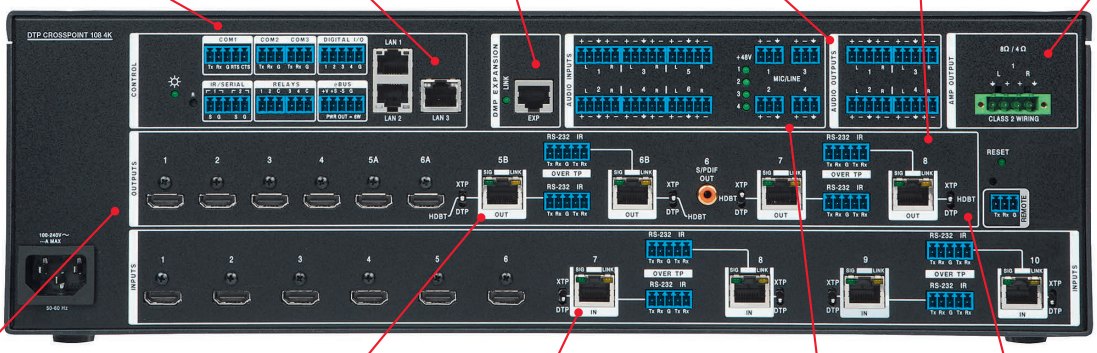
Built-in Gigabit Ethernet switch
Allows convenient connection of a TouchLink Pro touchpanel or other network controlled devices

DMP digital audio expansion port
Allows the matrix switcher and an Extron DMP 128 DSP to be linked together via a shielded CAT 6 cable for system expansion

Mic/line inputs with 48 volt phantom power and ducking
Four mic/line inputs are available for mixing microphones or line level sources into the audio outputs.

Scaled DTP outputs
The DTP CrossPoint 4K provides individual scaling up to 2560x1600 and 4K for each DTP output.

Integrated XTRA Series audio amplifier technologies
DTP CrossPoint 4K IPCP models are available with an integrated stereo or mono amplifier.



DTP CrossPoint 108 4K IPCP SA - Back

HDMI inputs and HDMI outputs
Enable easy integration with HDMI sources and displays

Two DTP outputs with mirrored HDMI connections
Two DTP outputs on the DTP CrossPoint 4K feature mirrored HDMI connections to support local monitoring.

DTP inputs and DTP outputs
The DTP inputs and outputs are compatible with DTP Systems, including DTP 230 and DTP 330 products, or XTP CrossPoint matrix switchers. They support digital signal transmission up to 330 feet (100 meters) over a single shielded CATx cable.

Extron ProDSP
Provides full control of audio input and output levels, plus a wide array of audio processing tools and matrix mixing options for program and microphone signals

Compatible with HDBaseT-enabled displays
The DTP outputs can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals to projectors and flat-panel displays equipped with HDBaseT inputs.

Features

All-in-one matrix switcher, scaler, audio DSP with AEC, audio power amplifier, and control processor

Choose from 10x8, 8x6, 8x4, and 8x2, matrix switcher configurations

Independently scaled DTP outputs
Two DTP outputs feature mirrored HDMI connections to support local monitoring.

4K matrix switching and scaling with logo keying
The DTP CrossPoint 4K supports 4K signals at all video inputs and outputs. Each DTP output features a built-in high performance Vector 4K video scaler, with the ability to insert a logo image.

Integrated DTP inputs and outputs support transmission of video, control, and audio up to 330 feet (100 m) over a shielded CATx cable
DTP endpoints can be remotely powered over each twisted pair connection.

Advanced Extron Vector 4K scaling engine
The Vector 4K scaling engine is specifically designed for critical-quality 4K imagery, with best-in-class image upscaling and downscaling. Scaling and video format conversion are performed at 30-bit precision for signals up to 4K to provide enhanced color accuracy and picture detail.

Selectable scaled DTP output rates from 640x480 to 4K
The output rate can be individually selected for each of the scaled DTP outputs. Available output rates include computer and video up to 4K.

Compatible with DTP 230 Series and DTP 330 Series, plus XTP CrossPoint matrix switchers
This enables mixing and matching with desktop and wallplate transmitters and receivers, as well as other DTP-enabled products. The DTP CrossPoint 4K can also be integrated with an XTP CrossPoint matrix switcher to provide connectivity between presentation spaces and a larger, facility-wide system.

DTP outputs are compatible with HDBaseT-enabled devices
The DTP outputs can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals to HDBaseT-enabled displays.

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

Bidirectional RS-232 and IR insertion for AV device control
Bidirectional RS-232 and IR signals can be inserted from a control system via dedicated control ports on the matrix switcher. Bidirectional RS-232 signals can also be inserted via the Gigabit switch.

HDMI audio embedding and de-embedding
Two-channel audio signals can be embedded onto the HDMI and DTP outputs. Embedded HDMI two-channel PCM audio can be extracted for routing and further processing. Embedded multi-channel bitstream formats are routed with the video to the HDMI and DTP outputs.

Output volume control
Master volume control is provided for the variable line level and amplified audio outputs. A separate control is provided for mic volume.

Audio input gain and attenuation, plus audio breakaway
Gain or attenuation can be adjusted for each two-channel audio input to eliminate noticeable differences when switching between sources. Audio breakaway provides the capability to break the two-channel audio away from its corresponding video signal and route to the audio outputs.

Integrated audio digital signal processor with ProDSP 32/64-bit floating point signal processing
The DTP CrossPoint 4K features 32/64-bit floating point audio DSP processing, which maintains very wide dynamic range and audio signal transparency, to simplify management of gain staging while reducing the possibility of DSP signal clipping.

Four channels of AEC
The matrix switcher includes four independent channels of high performance AEC, and selectable noise cancellation. Extron AEC features advanced algorithms that deliver fast echo canceler convergence for optimal intelligibility in situations that channel AEC performance, including double talk and the use of wireless microphones.

Automixer with eight groups
The matrix switcher features an automixer with gated and gain sharing modes for managing up to eight groups of microphone signals. Gating threshold, signal level reduction, and timing parameters are user adjustable per channel, allowing for fine tuning to avoid the "chopped" sound characteristic of a traditional automixer when a mic is gated off.

Digital audio expansion port provides interfacing to an Extron DMP 128 processor for audio system scalability
An expansion port allows the DTP CrossPoint 4K and any DMP 128 model to be linked together via a single shielded CAT 6 cable for 16x16 I/O channel transport between devices. This allows for audio system scalability with expanded audio processing and signal routing capabilities.

Four mic/line inputs with 48 volt phantom power
Four mic or line level audio sources can be independently mixed with program audio.

Mic ducking
Automatically reduces program audio when a microphone or other incoming audio signal is detected, eliminating the need for a separate audio ducking processor.

Studio grade 24-bit/48 kHz analog-to-digital and digital-to-analog converters
Professional converters fully preserve the integrity of the original audio signal.

Low latency DSP processing
The DTP CrossPoint 4K features very low, deterministic latency from input to output, regardless of the number of active channels or processes. While latency increases marginally in channels with AEC enabled, overall latency remains extremely

DTP SYSTEMS | 4K UHD | ProDSP | EDID MINDER | SPEED SWITCH | KEY MINDER

Features

low. This keeps audio in sync with video, and prevents distractions to the presenter resulting from delayed live audio.

DSP Configurator Software

DSP Configurator Software is a powerful yet user-friendly PC-based software tool for managing all audio operations of the DTP CrossPoint 4K. It enables complete setup and configuration of digital audio processing tools on the ProDSP platform, as well as routing and mixing.

Flexible matrix design provides output, virtual, and expansion routing options

The DSP architecture employs an intuitive matrix design that offers substantial flexibility in routing, mixing, and processing audio input sources.

Available with integrated energy efficient Class D audio amplifier

The DTP CrossPoint 4K IPCP includes a stereo power amplifier with 50 watts rms per channel into 4 ohms and 25 watts rms per channel into 8 ohms, or a mono 70 volt amplifier with 100 watts rms output.

Professional grade audio performance

The integrated amplifier delivers professional grade signal-to-noise ratio and THD+N performance.

Extron Patented CDRS - Class D Ripple Suppression

CDRS is an Extron patented technology that provides a smooth, clean audio waveform and an improvement in signal fidelity over conventional Class D amplifier designs. CDRS eliminates the high frequency switching ripple characteristic of Class D amplifiers, a source of RF emissions which can interfere with sensitive AV equipment such as wireless microphones.

Supported HDMI specification features include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, and HD lossless audio formats

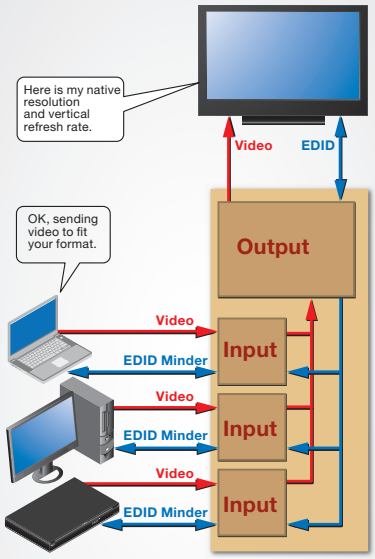
HDCP compliant

User-selectable HDCP authorization

This allows individual inputs to appear HDCP compliant or non-HDCP compliant to the connected source, which is beneficial if the source automatically encrypts all content when connected to an HDCP-compliant device. Protected material is not passed in non-HDCP mode.

Logo image keying and display

A logo graphic may be placed at any position on any scaled video output as a foreground image. Logo graphics in BMP, JPG, PNG, or TIFF format may be uploaded to the unit. Full screen images up to 4096x2400 resolution can also be displayed to eliminate blank screens between presentations.



EDID Minder automatically manages EDID communications between the display and video sources, ensuring that all sources power up correctly and reliably output content to the display.

Seamless switching

Seamless freeze/fade, cut through black, and fade through black transition effects are available at the scaled video outputs.

Extron-exclusive digital video technologies

The DTP CrossPoint 4K includes EDID Minder, Key Minder, and SpeedSwitch to simplify integration of HDMI sources and displays, and to help ensure optimal system performance and dependability.

HDCP Visual Confirmation

When processing HDCP-encrypted content, the DTP CrossPoint 4K outputs a full-screen green signal on any video output connected to a non-HDCP compliant display, providing immediate visual confirmation that protected content cannot be viewed.

QS-FPC™ - QuickSwitch Front Panel Controller

Provides a discrete button for each input and output, allowing for simple, intuitive operation. Buttons can be custom labeled for easy identification. The buttons illuminate red, green, or amber depending on function, for ease of use in low-light environments.

View I/O mode

Users can easily view which inputs and outputs are actively connected.

Global presets

Frequently used I/O configurations may be recalled either from the QuickSwitch Front Panel Controller, Ethernet, USB, or RS-232.

Output muting control

One or all outputs can be muted at any time. This allows, for example, content to be viewed on a local monitor prior to appearing on the main presentation display.

Aspect ratio control

For the scaled DTP outputs, the aspect ratio of the video 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.

Available with integrated IPCP Pro 350 control processor

The DTP CrossPoint 4K IPCP includes a built-in IPCP Pro 350 control processor for complete AV system control.

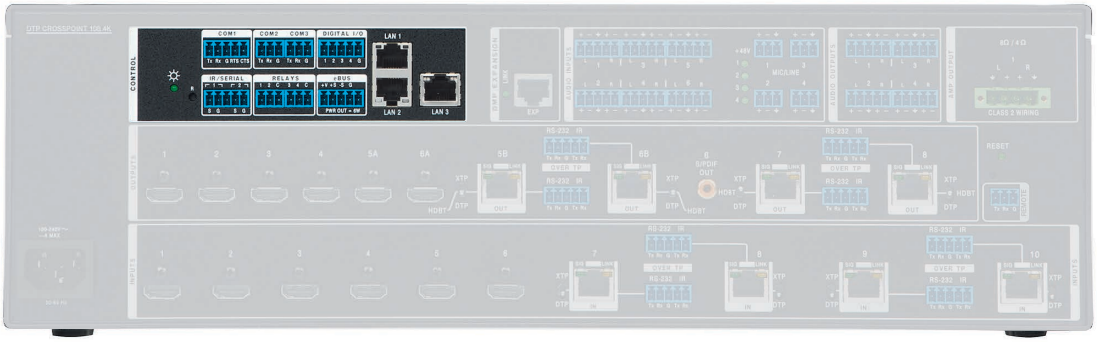
Multiple options for control, configuration, and monitoring

In addition to front panel controls, the DTP CrossPoint 4K offers Ethernet monitoring and control, built-in Web pages, RS-232 control, plus a front panel USB configuration port.

Easy setup and commissioning with Extron's PCS - Product Configuration Software

Conveniently configure multiple products, including the DTP CrossPoint 4K, using a single software application.

Integrated Control Processor



BUILT-IN IP LINK PRO CONTROL PROCESSOR

The integrated IPCP Pro 350 control processor includes all of the same advanced features, processing power, and breakthrough technologies found in the Extron Pro Series control systems. It enables the DTP CrossPoint 4K IPCP to provide powerful AV and room control capabilities, including control of all sources and displays, lighting, window shades, projection screens, occupancy sensing, and much more. The DTP CrossPoint 4K IPCP can also be grouped with up to three additional IPCP Pro control processors using Global Configurator Professional software to create large, sophisticated control systems. This is ideal for controlling multiple systems, rooms, or even remote locations around the world.

Two bidirectional RS-232 serial ports with software handshaking

One bidirectional RS-232/RS-422/ RS-485 serial port with hardware and software handshaking

Two IR/serial ports for one-way control of external devices

Four digital I/O ports and four relays
Provide control of various room functions

Integrated three port network switch
Allows for easy connection of touchpanels or other network controlled devices

Supports secure industry standard communications protocols
Uses industry standard communication protocols, including HTTP (insecure), HTTPS, SSH, SFTP, SMTP, NTP, Discovery Service, DHCP, DNS, ICMP, and IPv4

Supports LinkLicense
Enhances the capabilities of Extron Pro Series control systems

Multi-level password protection
Allows security to be set based on user roles

Fully customizable using Extron control system software
GUI Designer combined with Global Configurator Plus or Global Configurator Professional

Controller Groups
Allow multiple IP Link Pro control processors to be grouped together to function as one, when configured with Global Configurator Professional

PAIR WITH TOUCHLINK PRO TOUCHPANELS FOR A POWERFUL AV CONTROL SYSTEM

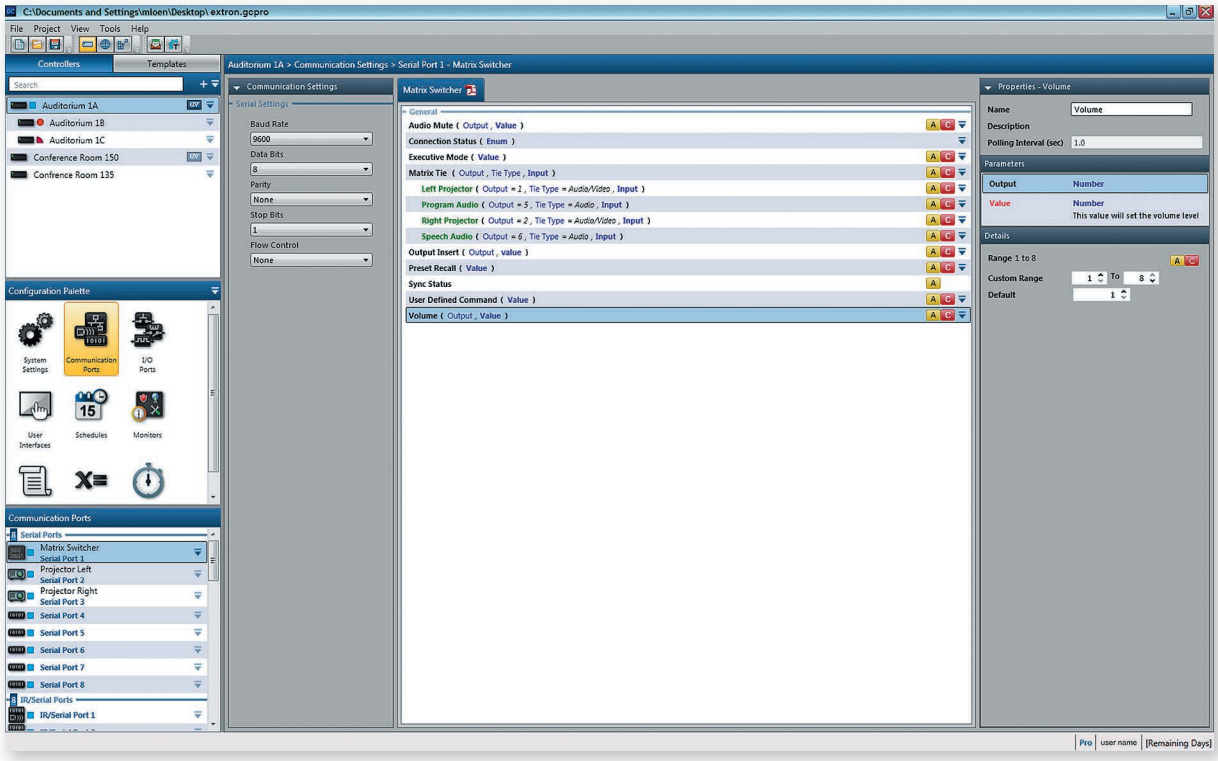
The DTP CrossPoint 4K IPCP supports direct connectivity with Extron TouchLink® Pro touchpanels through the Gigabit switch on the presentation matrix switcher. TouchLink Pro touchpanels feature enhanced processing and memory, plus capacitive touchscreens for select models. These touchpanels are also available in a variety of form factors and sizes from 3.5" to 15" to suit a wide range of applications.

Advanced Control System Configuration

POWERFUL CONFIGURATION SOFTWARE

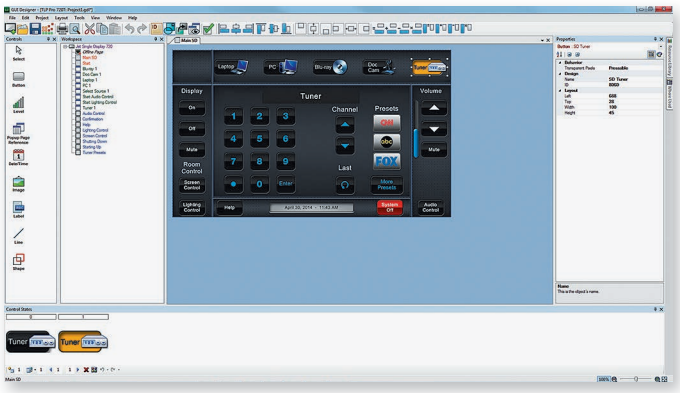
Global Configurator is Extron's most powerful and versatile control system configuration software. It is ideal for a wide variety of control systems and applications, and helps streamline integration within today's demanding AV control environments. Within this latest version, powerful features, such as conditional logic, variables, and macros provide even greater flexibility for more elaborate control system designs. Global Configurator has two modes. Global Configurator Plus is ideal for smaller scale applications requiring one control processor and one control interface. Global Configurator Professional duplicates all of the powerful features within Global Configurator Plus but is especially suited for applications requiring multiple control processors, enhanced functionality, and advanced configuration.

One of the many features of Global Configurator Professional is the ability to create controller groups. Multiple control processors can be grouped together with the DTP CrossPoint 4K IPCP to function as one. This provides unique control system scalability, and is beneficial when more control ports are needed than offered on a single control processor, especially in larger-scale projects spanning multiple rooms.



GUI DESIGNER

Extron GUI Designer is a software application used for the design, creation, and maintenance of Extron TouchLink Pro user interfaces. Begin with ready-to-use design templates and resource kits, or start from scratch and build your own layout using our comprehensive software. The available design elements are fully customizable and matched carefully to popular AV system applications. In many cases, all of the input sources, display control, and environmental settings are already in place. These resources are fully developed and include complete, detailed documentation.



Add Powerful Capabilities with LinkLicense

LinkLicense For User Interfaces

LinkLicense For Software Conferencing

Extron LinkLicense® is an easy, cost-effective way to add even more powerful capabilities to Extron products. Purchasing a LinkLicense for User Interfaces upgrade for the DTP CrossPoint 4K IPCP will enable people to use a mobile device or computer as the primary control interface for the AV system. LinkLicense for Software Conferencing is another LinkLicense option that transforms traditional software conferencing codecs into customizable applications that enhance all aspects of conferencing and AV system control.

General Features

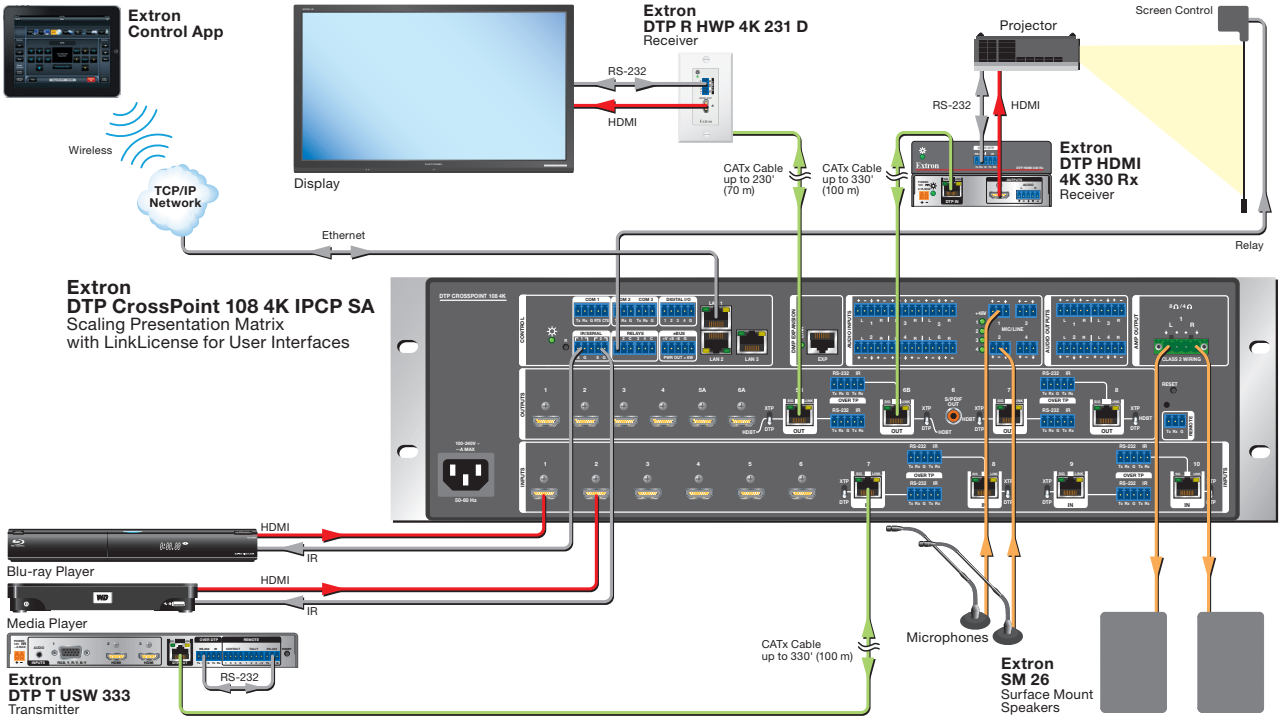
- Purchase LinkLicense and active it with a single click to take immediate advantage of all the benefits
- Unlock features that add convenience, expand system options, and enhance the capabilities of your Extron products
- No central management of licenses required

LinkLicense for User Interfaces Features

- Use a mobile device or computer as the primary control interface in an Extron control system
- Simplify deployment of BYOD – Bring Your Own Device control designs
- Streamlines support by standardizing on a consistent BYOD control approach across your organization

LinkLicense for Software Conferencing Features

- Works with Extron Codec Connect
- Helps transform traditional software conferencing codecs into customizable, user-driven applications that enhance all aspects of both conferencing and AV system control

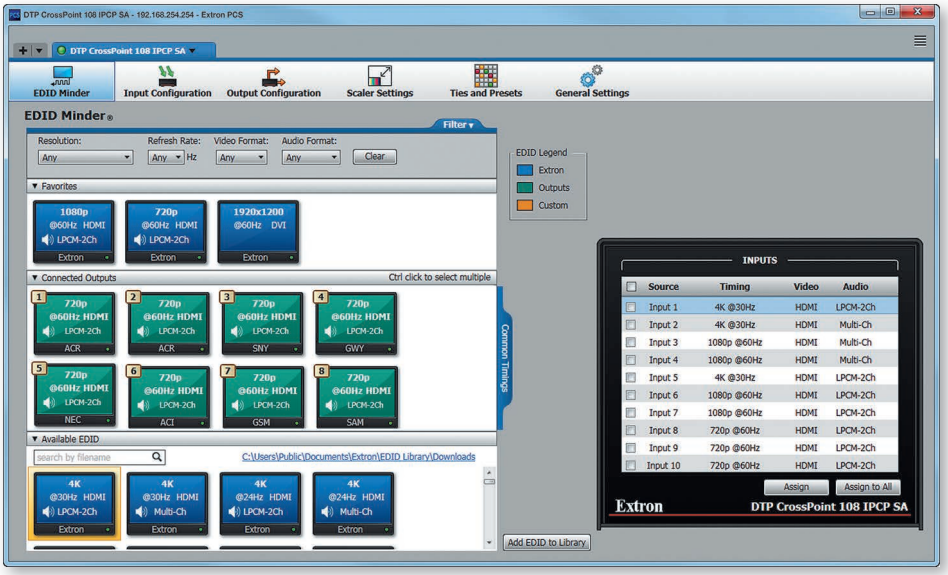


Product Configuration Software

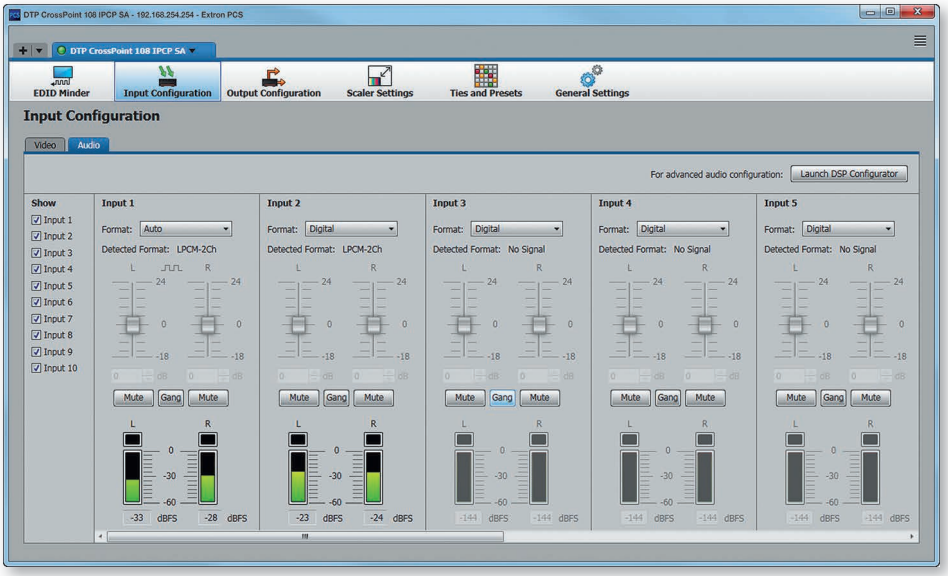
INTUITIVE SYSTEM SETUP AND OPERATION

The DTP CrossPoint 4K Series can be easily configured using Extron's PCS - Product Configuration Software via the front panel USB port or over Ethernet. The user-friendly GUI of the configuration software allows for expedited audio and video setup. You are able to use the DTP CrossPoint 4K out of the box, in just a few steps. Users can view details about the current input and output, such as video signal presence, HDCP status, and audio format. In addition to creating AV matrix switching ties, picture settings are available for the four independently scaled DTP outputs. These include resolution selection, image brightness, contrast, positioning, sizing, and more. PCS offers preset management and provides the ability to configure multiple DTP CrossPoint 4K units in the same session, making it easy for AV integrators to quickly set up systems across different rooms in a facility.

AV integrators and technicians can adjust audio levels in PCS using the graphical sliders available for each input. Real-time meters are available at all inputs and outputs to set proper gain structure for the audio system. For full audio system optimization and fine-tuning, integrators can take advantage of the DSP Configurator Software which is conveniently accessible from PCS.



The intuitive user interface makes it easy to independently apply EDID settings to each input, allowing the user to select from EDID captured from connected output devices, factory default EDID, or custom EDID uploaded to the unit.



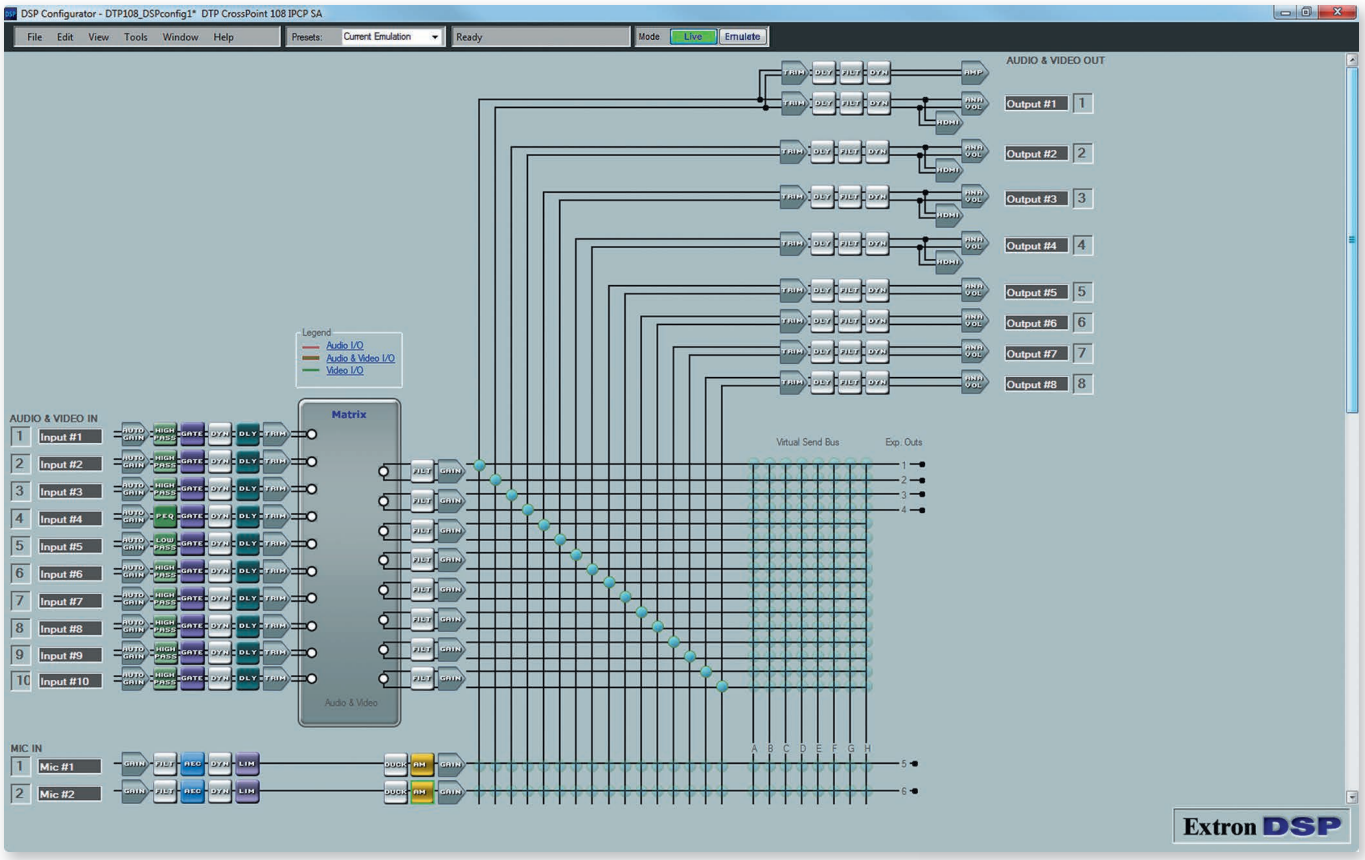
PCS enables expedited audio system setup with convenient audio input format selection, level adjustment, and real-time meters for each input and output.

DSP Configurator Software

EASY-TO-USE DSP CONFIGURATOR SOFTWARE FOR FAST SETUP

The DSP Configurator Software allows AV integrators and technicians to take advantage of the professional grade DSP in the DTP CrossPoint 4K for full audio system design, precise optimization and fine tuning, and proper gain structure. The intuitive Graphical User Environment offers fast access to all digital audio signal processing tools for the matrix switcher, including level control, dynamics, filters, delay, loudness, feedback suppression, and matrix mixing. The DSP Configurator Software is also used to configure and manage AEC and automixing, providing real-time metering for echo return or echo reduction levels. Designers can quickly get a snapshot of the entire audio system, including all processing blocks, AV matrix switching ties, and audio matrix mixing, without having to access multiple windows or menus.

Using the DSP Configurator Software, users can matrix mix any of the mic/line inputs into any of the eight stereo output buses to create finely tuned audio zones for the corresponding outputs. With virtual buses, the inputs can be processed together as a group, before routing into the output buses. These flexible routing and mixing capabilities allow designers to create simple or complex signal management schemes to accommodate a wide variety of system application requirements. For added convenience, the DSP Configurator Software offers an Emulate mode, in addition to a Live mode, so that settings can be configured and saved offline. The configuration file can then be uploaded to the DTP CrossPoint 4K when you are ready to install the unit into a system. Available Building Blocks processor settings and the ability to save presets of any or all DSP parameters provide additional ease when setting up a fully optimized audio system.

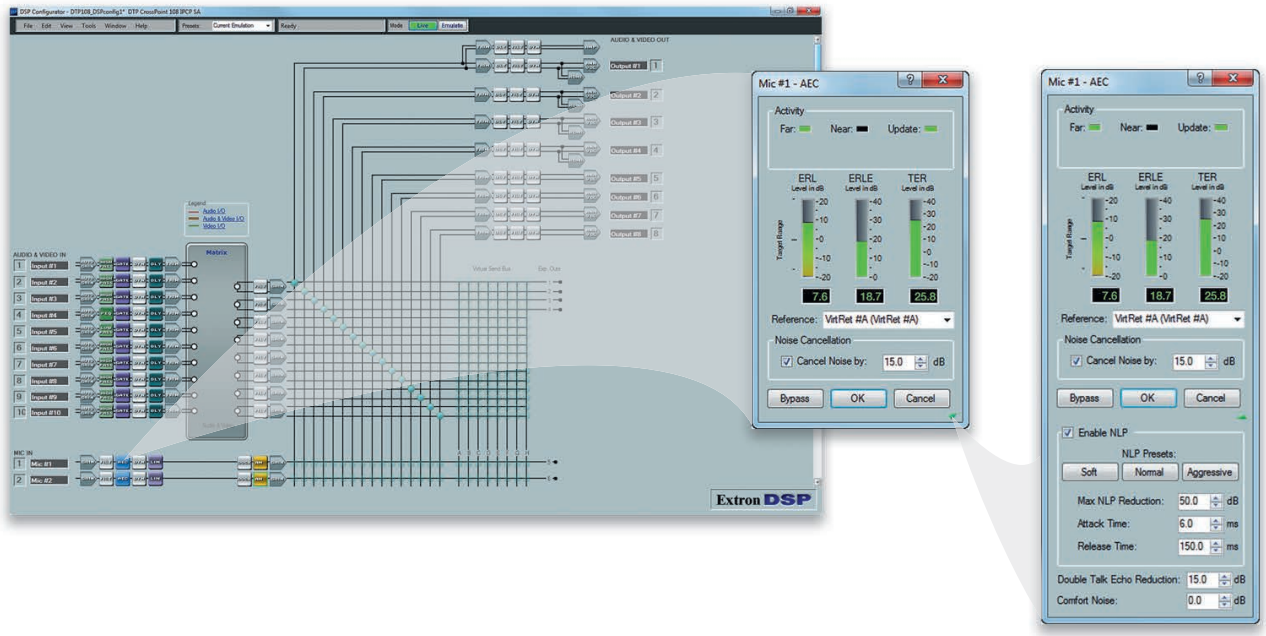


The DSP Configurator Software provides a convenient snapshot of the entire audio system, including all processing blocks, AV matrix switching ties, and audio matrix mixing.

DSP Configuration Software

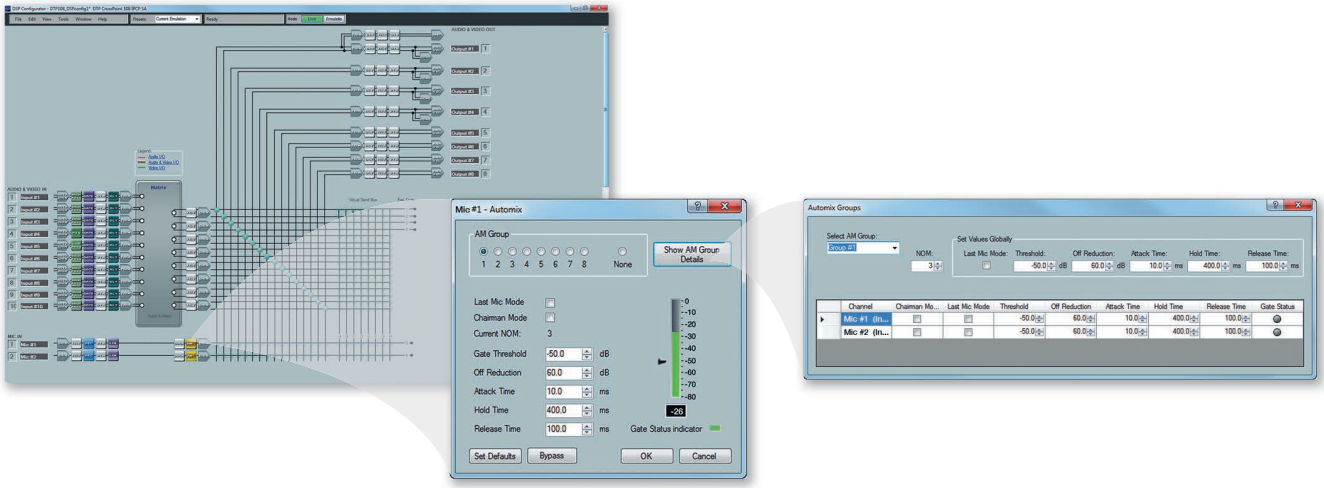
ACOUSTIC ECHO CANCELLATION

In conferencing applications, hearing the talker's voice returned as an echo is disruptive to natural communication. AEC processing prevents far end audio, as reproduced in the near end, from being returned back to the remote talker as echo, ensuring clear, natural conversations. However, AEC processing can be challenged by conditions such as double-talk, when talkers from both ends are speaking simultaneously, and when near end talkers use wireless microphones. Extron AEC delivers fast echo cancelling optimized for these challenging conditions.



AUTOMIXER

The DTP CrossPoint 4K offers an automixer with gated and gain sharing modes, and includes several advanced features for optimizing microphone management. Multiple trigger protection allows only the microphone with the highest signal to be active while the rest are gated off. The NOM - number of open microphones can be specified to limit the number of active microphones at one time. For a natural sounding mic mix, the automixer also offers a gain sharing mode when the NOM is bypassed, allowing all mics to gate on. A global automixer configuration screen in the DSP Configurator Software enables fast, intuitive management of all microphones and groups in a centralized user interface.

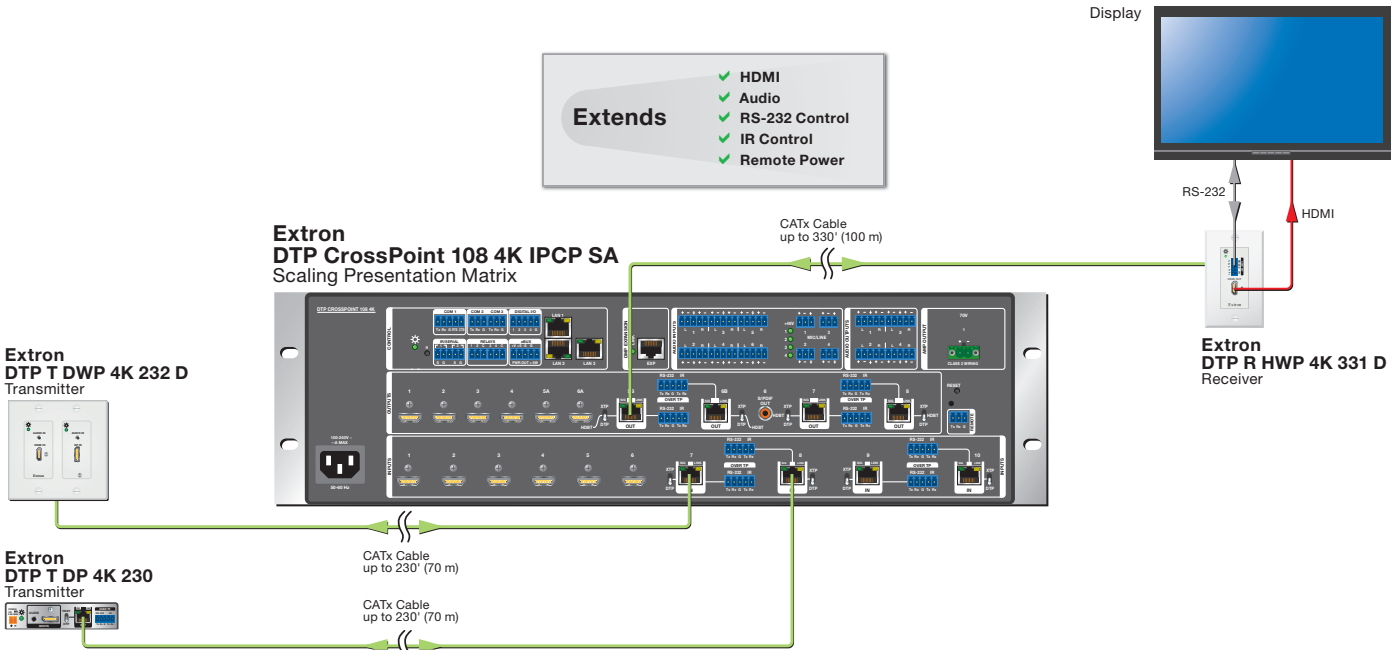


Compatible with all DTP Products

The DTP CrossPoint 4K works in conjunction with all Extron DTP 230 and DTP 330 transmitters and receivers to extend video, audio, and control signals in AV switching applications. When the DTP CrossPoint 4K is paired with a DTP 330 transmitter or receiver, HDMI, DisplayPort, DVI, 3G-SDI, or VGA, plus control and analog audio signals can be extended up to 330 feet (100 meters). With a DTP 230 endpoint, signals can be extended up to 230 feet (70 meters). The ability to extend these signals and provide remote power to each DTP endpoint with just one shielded CATx cable greatly streamlines system designs and installation.

Designed for rack mount and architectural applications, the DTP transmitters and receivers provide convenient connection points at remote source and display locations. Decora models are available for placement in walls, lecterns, floor boxes, or behind flat-panel displays. Compact, low-profile versions can be discreetly installed beneath tables, in lecterns, above ceiling-mounted projectors, or behind flat-panel displays.

DTP transmitters and receivers are HDCP compliant and support computer and video resolutions up to 2560x1600, including 1080p/60 and 2K. Single input transmitters and receivers, as well as select two-input transmitters, also support 4K resolutions. In addition, DDC communication of EDID and HDCP is continuously maintained between a source and display, ensuring direct compatibility and optimal signal transmission between devices. Multi-input transmitter models allow convenient sub-switching at a wall location, in a lectern, or under a conference room table. In addition, the multi-input transmitters offer auto-switching between inputs, plus contact closure and RS-232 control, for simplified operation. DTP 230 and DTP 330 transmitters also accept direct analog stereo audio connections from Blu-ray Disc players, laptops, or other devices for simultaneous transmission over the shielded CATx cable to the DTP CrossPoint 4K, eliminating the need for separate cable runs.



DTP Transmitters

Extron DTP twisted pair transmitters are HDCP compliant and enable reliable digital transmission of video, audio, and bidirectional control signals up to 230 feet (70 meters) or 330 feet (100 meters) over a shielded twisted pair cable. DTP transmitters can also be remotely powered by a DTP-enabled product over the same shielded CATx cable. Designed for rack mount and architectural applications, the DTP transmitters provide convenient connection points for local and remote source locations. These transmitters work in conjunction with DTP receivers and DTP-enabled products to extend video, audio, and control over a shielded CATx cable to destinations within an Extron DTP System.

DTP HDMI 4K 330 Tx

DTP T HD2 4K 330

DTP HDMI 4K 230 Tx and DTP HDMI 4K 330 Tx

DTP Transmitter for HDMI

- Inputs: HDMI, 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Supports computer and video resolutions up to 4K

Model	Version Description	Part Number
DTP HDMI 4K 230 Tx	HDMI Tx - 230 feet (70 m)	60-1271-12
DTP HDMI 4K 330 Tx	HDMI Tx - 330 feet (100 m)	60-1331-12

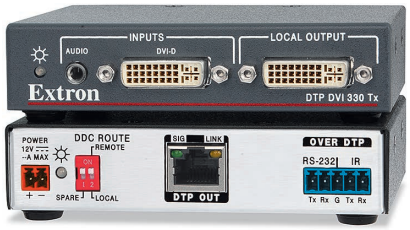
DTP T HD2 4K 230 and DTP T HD2 4K 330

DTP Transmitter for HDMI with Input Loop-Through

- Inputs: HDMI with buffered input loop-through
- Output: One DTP twisted pair output
- Supports computer and video resolutions up to 4K
- Buffered HDMI input loop-through
- DTP output is compatible with HDBaseT-enabled devices

Model	Version Description	Part Number
DTP T HD2 4K 230	HDMI Tx - 230 feet (70 m)	60-1491-12
DTP T HD2 4K 330	HDMI Tx - 330 feet (100 m	60-1491-52

DTP T DP 4K 330



DTP DVI 4K 330 Tx

DTP T DP 4K 230 and DTP T DP 4K 330

DTP Transmitter for DisplayPort

- Inputs: One DisplayPort, 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Supports computer and video resolutions up to 4K, including 2560x1600
- DTP output is compatible with HDBaseT-enabled devices

Model	Version Description	Part Number
DTP T DP 4K 230	DisplayPort Tx - 230 feet (70 m)	60-1076-12
DTP T DP 4K 330	DisplayPort Tx - 330 feet (100 m))	60-1076-52

DTP DVI 4K 230 Tx and DTP DVI 4K 330 Tx

DTP Transmitter for DVI

- Inputs: DVI-D with loop-through, 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Supports computer and video resolutions up to 4K
- Supported HDMI specification features include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through

Model	Version Description	Part Number
DTP DVI 4K 230 Tx	DVI Tx - 230 feet (70 m)	60-1272-12
DTP DVI 4K 330 Tx	DVI Tx - 330 feet (100 m)	60-1272-52

DTP Transmitters

DTP T HWP 4K 331 D

DTP T HWP 4K 231 D and DTP T HWP 4K 331 D

DTP Transmitter for HDMI – Decora Wallplate

- Inputs: HDMI, 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Supports computer and video resolutions up to 4K
- DTP output is compatible with HDBaseT-enabled devices

Model	Version Description	Part Number
DTP T HWP 4K 231 D	HDMI Decora Tx, Black - 230 feet (70 m)	60-1421-12
DTP T HWP 4K 231 D	HDMI Decora Tx, White - 230 feet (70 m)	60-1421-13
DTP T HWP 4K 331 D	HDMI Decora Tx, Black - 330 feet (100 m)	60-1421-52
DTP T HWP 4K 331 D	HDMI Decora Tx, White - 330 feet (100 m)	60-1421-53

DTP T 3G-SDI 330 D

DTP T 3G-SDI 230 D and DTP T 3G-SDI 330 D

DTP Transmitter for 3G-SDI – Decora Wallplate

- Inputs: 3G-SDI/HD-SDI/SDI with buffered input loop-through on BNC connectors, 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Accepts 3G-SDI/HD-SDI/SDI signals up to 2.97 Gbps
- Buffered 3G-SDI/HD-SDI/SDI input loop-through
- Mounts in an included single-gang Decora-style wallplate

Model	Version Description	Part Number
DTP T 3G-SDI 230 D	3G-SDI Decora Tx, Black - 230 feet (70 m)	60-1479-12
DTP T 3G-SDI 230 D	3G-SDI Decora Tx, White - 230 feet (70 m)	60-1479-13
DTP T 3G-SDI 330 D	3G-SDI Decora Tx, Black - 330 feet (100 m)	60-1479-52
DTP T 3G-SDI 330 D	3G-SDI Decora Tx, White - 330 feet (100 m)	60-1479-53

DTP DVI 4K 230 D Tx

DTP DVI 4K 230 D Tx

DTP Transmitter for DVI – Decora Wallplate

- Inputs: DVI-D with loop-through, 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Supports computer and video resolutions up to 4K
- DVI input loop-through
- Supported HDMI specification features include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through
- Mounts in an included two-gang Decora-style wallplate

Model	Version Description	Part Number
DTP DVI 4K 230 D Tx	DVI Decora Tx, Black - 230 feet (70 m)	60-1214-12
DTP DVI 4K 230 D Tx	DVI Decora Tx, White - 230 feet (70 m)	60-1442-13

DTP T EU 4K 331

DTP T EU 4K and DTP T MK 4K

DTP Transmitters for EU and MK Electrical Junction Boxes

- Input: one HDMI
- Output: One DTP twisted pair output
- Supports computer and video resolutions up to 4K
- DTP output is compatible with HDBaseT-enabled products
- Supported HDMI specification features include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, HD lossless audio formats, and CEC pass-through

Model	Version Description	Part Number
DTP T EU 4K 231	HDMI EU Tx - 230 feet (70 m)	60-1532-12
DTP T EU 4K 331	HDMI EU Tx - 330 feet (100 m)	60-1532-52
DTP T MK 4K 231	HDMI MK Tx - 230 feet (70 m)	60-1533-12
DTP T MK 4K 331	HDMI MK Tx - 330 feet (100 m)	60-1533-52

DTP Switching Transmitters

Extron DTP switching transmitters provide high performance input switching between multiple source devices for transmission of video, audio, and bidirectional control over a shielded CATx cable to destinations within a DTP System. DTP switching transmitters can also be remotely powered by a DTP-enabled product over the same shielded CATx cable. These transmitters offer convenient features such as automatic switching between inputs and Extron-exclusive EDID Minder technology. DTP switching transmitters are available in a variety of form factors for convenient sub-switching at a wall location, in a lectern, in a floor box, or under a conference room table.

DTP T DWP 4K 332 D

DTP T DWP 4K 232 D and DTP T DWP 4K 332 D

DTP Transmitter for DisplayPort and HDMI with Audio Embedding – Decora Wallplate

- Inputs: One DisplayPort, one HDMI, two 3.5 mm stereo mini jacks for audio pass-through
- Output: One DTP twisted pair output
- Auto-switching between inputs
- Analog stereo audio embedding

Model	Version Description	Part Number
DTP T DWP 4K 232 D	DP, HDMI Decora Tx, Black – 230 feet (70 m)	60-1498-12
DTP T DWP 4K 232 D	DP, HDMI Decora Tx, White – 230 feet (70 m)	60-1498-13
DTP T DWP 4K 332 D	DP, HDMI Decora Tx, Black – 330 feet (100 m))	60-1498-52
DTP T DWP 4K 332 D	DP, HDMI Decora Tx, White – 330 feet (100 m)	60-1498-53

DTP T UWP 332 D

DTP T UWP 232 D and DTP T UWP 332 D

DTP Transmitter for HDMI and VGA with Audio Embedding – Decora Wallplate

- Inputs: One HDMI, one VGA on 15-pin HD, two 3.5 mm stereo mini jacks for audio
- Output: One DTP twisted pair output
- Auto-switching between inputs
- Analog stereo audio embedding

Model	Version Description	Part Number
DTP T UWP 232 D	HDMI, VGA Decora Tx, Black – 230 feet (70 m)	60-1366-12
DTP T UWP 232 D	HDMI, VGA Decora Tx, White – 230 feet (70 m)	60-1366-13
DTP T UWP 332 D	HDMI, VGA Decora Tx, Black – 330 feet (100 m)	60-1366-52
DTP T UWP 332 D	HDMI, VGA Decora Tx, White – 330 feet (100 m)	60-1366-53

DTP T HWP 332 D

DTP T HWP 232 D and DTP T HWP 332 D

Two Input DTP Transmitter for HDMI with Audio Embedding – Decora Wallplate

- Inputs: Two HDMI, two 3.5 mm stereo mini jacks for audio
- Output: One DTP twisted pair output
- Auto-switching between inputs
- Analog stereo audio embedding

Model	Version Description	Part Number
DTP T HWP 232 D	2 HDMI Decora Tx, Black - 230 feet (70 m)	60-1365-12
DTP T HWP 232 D	2 HDMI Decora Tx, White - 230 feet (70 m)	60-1365-13
DTP T HWP 332 D	2 HDMI Decora Tx, Black - 330 feet (100 m)	60-1365-52
DTP T HWP 332 D	2 HDMI Decora Tx, White - 330 feet (100 m)	60-1365-53

DTP T FB 332

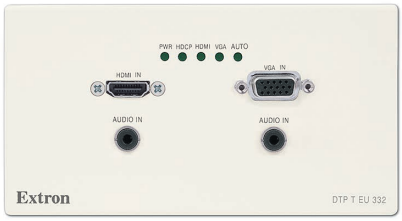
DTP T FB 232 and DTP T FB 332

Two Input DTP Transmitter for Floor Boxes

- Inputs: One HDMI, one VGA on 15-pin HD, one 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Auto-switching between inputs
- Analog stereo audio embedding

Model	Version Description	Part Number
DTP T FB 232	Two Input Floor Box Tx - 230 feet (70 m)	60-1440-12
DTP T FB 332	Two Input Floor Box Tx - 330 feet (100 m)	60-1440-52

DTP Switching Transmitters



DTP T EU 332

DTP T EU 232 and DTP T EU 332

Two Input DTP Transmitter for EU-Type Junction Boxes

- Inputs: One HDMI, one VGA on 15-pin HD, two 3.5 mm stereo mini jacks for audio pass-through
- Output: One DTP twisted pair output
- Designed to mount in a standard two-gang EU-type electrical junction box

Model	Version Description	Part Number
DTP T EU 232	Two Input EU Tx - 230 feet (70 m)	60-1439-12
DTP T EU 332	Two Input EU Tx - 330 feet (100 m)	60-1439-52

DTP T MK 332

DTP T MK 232 and DTP T MK 332

Two Input DTP Transmitter for MK-Type Junction Boxes

- Inputs: One HDMI, one VGA on 15-pin HD, two 3.5 mm stereo mini jacks for audio pass-through
- Output: One DTP twisted pair output
- Designed to mount in a standard two-gang MK-type electrical junction box

Model	Version Description	Part Number
DTP T MK 232	Two Input MK Tx - 230 feet (70 m)	60-1467-12
DTP T MK 332	Two Input MK Tx - 330 feet (100 m)	60-1467-52

DTP T USW 333

DTP T USW 233 and DTP T USW 333

Three Input Switcher with Integrated DTP Transmitter

- Inputs: Two HDMI, one VGA on 15-pin HD, one 3.5 mm stereo mini jack for audio pass-through
- Output: One DTP twisted pair output
- Auto-switching between inputs
- Analog stereo audio embedding

Model	Version Description	Part Number
DTP T USW 233	2 HDMI, VGA Switcher – 230 feet (70 m)	60-1329-12
DTP T USW 333	2 HDMI, VGA Switcher – 330 feet (100 m)	60-1329-52

DTP T DSW 4K 333

DTP T DSW 4K 233 and DTP T DSW 4K 333

Three Input Multi-Format Switcher with Integrated DTP Transmitter and Audio Embedding

- Inputs: One DisplayPort, one HDMI, one VGA on 15-pin HD, one 3.5 mm stereo mini jack for audio
- Output: One DTP twisted pair output
- Auto-switching between inputs
- Analog stereo audio embedding

Model	Version Description	Part Number
DTP T DSW 4K 233	DisplayPort, HDMI, VGA Switcher – 230 feet (70 m)	60-1487-12
DTP T DSW 4K 333	DisplayPort, HDMI, VGA Switcher – 330 feet (100 m)	60-1487-52

DTP Distribution Amplifiers

Extron distribution amplifiers with DTP twisted pair outputs are engineered for reliable operation in commercial AV applications. They provide digital transmission of video, audio, and bidirectional control signals up to 230 feet (70 meters) or 330 feet (100 meters) over shielded CATx cable to destinations within a DTP System. They are HDCP compliant and include integrator-friendly features such as EDID Minder, Key Minder, remote power capability, and selectable output muting.

DTP HD DA4 4K 330

DTP HD DA8 4K 330

DTP HD DA4 4K 230 and DTP HD DA4 4K 330

Four Output DTP Distribution Amplifier

- Inputs: One HDMI with buffered input loop-through, one 3.5 mm stereo mini jack for audio with loop-through
- Outputs: Four DTP twisted pair outputs
- Supports computer and video resolutions up to 4K
- DTP outputs are compatible with HDBaseT-enabled devices

Model	Version Description	Part Number
DTP HD DA4 4K 230	HDMI to Four Output DTP DA - 230 feet (70 m)	60-1437-01
DTP HD DA4 4K 330	HDMI to Four Output DTP DA - 330 feet (100 m)	60-1437-51

DTP HD DA8 4K 230 and DTP HD DA8 4K 330

Eight Output DTP Distribution Amplifier

- Inputs: One HDMI with buffered input loop-through, one 3.5 mm stereo mini jack for audio with loop-through
- Outputs: Eight DTP twisted pair outputs
- Supports computer and video resolutions up to 4K
- DTP outputs are compatible with HDBaseT-enabled devices

Model	Version Description	Part Number
DTP HD DA8 4K 230	HDMI to Eight Output DTP DA - 230 feet (70 m)	60-1438-01
DTP HD DA8 4K 330	HDMI to Eight Output DTP DA - 330 feet (100 m)	60-1438-51

DTP RECEIVERS

A wide selection of HDCP-compliant DTP twisted pair receivers are also available for extending AV and control signals over a shielded CATx cable to destinations within a DTP System. Designed for rack mount and architectural applications, the DTP receivers provide convenient connection points at remote display locations.

DTP R HWP 4K 331 D

DTP DVI 4K 230 D Rx

DTP R HWP 4K 231 D & DTP R HWP 4K 331 D

DTP Receiver for HDMI – Decora Wallplate

- Input: One DTP twisted pair input
- Outputs: HDMI, captive screw for audio pass-through
- Supports computer and video resolutions up to 4K

Model	Version Description	Part Number
DTP R HWP 4K 231 D	HDMI Decora Rx, Black - 230 feet (70 m)	60-1531-12
DTP R HWP 4K 231 D	HDMI Decora Rx, White - 230 feet (70 m)	60-1531-13
DTP R HWP 4K 331 D	HDMI Decora Rx, Black - 330 feet (100 m)	60-1531-52
DTP R HWP 4K 331 D	HDMI Decora Rx, White - 330 feet (100 m)	60-1531-53

DTP DVI 4K 230 D Rx

DTP Receiver for DVI – Decora Wallplate

- Input: One DTP twisted pair input
- Outputs: DVI-D, 3.5 mm stereo mini jack for audio pass-through
- Supports computer and video resolutions up to 4K

Model	Version Description	Part Number
DTP DVI 4K 230 D Rx	DVI Decora Rx, Black - 230 feet (70 m)	60-1214-22
DTP DVI 4K 230 D Rx	DVI Decora Rx, White - 230 feet (70 m)	60-1214-23

DTP Receivers

DTP HDMI 4K 330 Rx

DTP HDMI 4K 230 Rx and DTP HDMI 4K 330 Rx

DTP Receiver for HDMI

- Input: One DTP twisted pair input
- Outputs: HDMI, captive screw connector for audio pass-through
- Supports computer and video resolutions up to 4K

Model	Version Description	Part Number
DTP HDMI 4K 230 Rx	HDMI Rx - 230 feet (70 m)	60-1271-13
DTP HDMI 4K 330 Rx	HDMI Rx - 330 feet (100 m)	60-1331-13

DTP DVI 4K 330 Rx

DTP DVI 4K 230 Rx and DTP DVI 4K 330 Rx

DTP Receiver for DVI

- Input: One DTP twisted pair input
- Outputs: One DVI-D, captive screw connector for audio pass-through
- Supports computer and video resolutions up to 4K

Model	Version Description	Part Number
DTP DVI 4K 230 Rx	DVI Rx - 230 feet (70 m)	60-1272-13
DTP DVI 4K 330 Rx	DVI Rx - 330 feet (100 m)	60-1360-13

DTP R DP 4K 330

DTP R DP 4K 230 and DTP R DP 4K 330

DTP Receiver for DisplayPort

- Input: One DTP twisted pair input
- Outputs: DisplayPort, captive screw connector for audio pass-through
- Supports computer and video resolutions up to 4K, including 2560x1600

Model	Version Description	Part Number
DTP R DP 4K 230	DisplayPort Rx - 230 feet (70 m)	60-1076-13
DTP R DP 4K 330	DisplayPort Rx - 330 feet (100 m)	60-1076-53

DTP Cable & Accessories

Extron XTP DTP 24 shielded twisted pair cable is specifically engineered for optimum signal transmission and signal path reliability in Extron DTP Systems. XTP DTP 24 cable has been independently tested in an HDBaseT™ Alliance Recognized Testing Facility, and verified to meet performance requirements for recommendation by the Alliance. To ensure an end-to-end cable infrastructure with maximum performance and integrity, Extron strongly recommends XTP DTP 24 shielded RJ-45 plugs, punch down jacks, and couplers when installing XTP DTP 24 cable.

XTP DTP 24 Series

Precision-terminated Shielded Twisted Pair Cable for XTP Systems and DTP Systems

- Engineered for superior performance with Extron XTP Systems and DTP Systems
- Provides added protection from outside interference and ensures high quality signal transmission
- Certified to 475 MHz bandwidth at distances up to 330 feet (100 m)

Model	Version Description	Part Number
XTP DTP/3	3' (90 cm)	26-702-03
XTP DTP/6	6' (1.8 m)	26-702-06
XTP DTP/9	9' (2.7 m)	26-702-09
XTP DTP/12	12' (3.6 m)	26-702-12
XTP DTP/25	25' (7.6 m)	26-702-25
XTP DTP/35	35' (10.6 m)	26-702-35
XTP DTP/50	50' (15.2m)	26-702-50
XTP DTP/75	75' (22.8 m)	26-702-75
XTP DTP/100	100' (30.4 m)	26-702-100

XTP DTP 24P Series

Precision-terminated Shielded Twisted Pair Cable for XTP Systems and DTP Systems - Plenum

- Engineered for superior performance with Extron XTP Systems and DTP Systems
- Provides added protection from outside interference and ensures high quality signal transmission
- Certified to 475 MHz bandwidth at distances up to 330 feet (100 m)

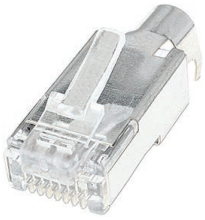
Model	Version Description	Part Number
XTP DTP P/3	3' (90 cm)	26-695-03
XTP DTP P/6	6' (1.8 m)	26-695-06
XTP DTP P/9	9' (2.7 m)	26-695-09
XTP DTP P/12	12' (3.6 m)	26-695-12
XTP DTP P/25	25' (7.6 m)	26-695-25
XTP DTP P/35	35' (10.6 m)	26-695-35
XTP DTP P/50	50' (15.2m)	26-695-50
XTP DTP P/75	75' (22.8 m)	26-695-75
XTP DTP P/100	100' (30.4 m)	26-695-100

XTP DTP 24

Shielded Twisted Pair Cable for XTP Systems and DTP Systems

- Engineered for superior performance with Extron XTP Systems and DTP Systems
- Provides added protection from outside interference and ensures high quality signal transmission
- Certified to 475 MHz bandwidth at distances up to 330 feet (100 m)

Model	Version Description	Part Number
XTP DTP 24/1000	Non-Plenum 1000' (305 m) spool	22-236-03
XTP DTP 24P/1000	Plenum 1000' (305 m) spool	22-235-03



XTP DTP 24 Plug

Shielded RJ-45 Plug Kit for Extron XTP DTP 24 Shielded Twisted Pair Cable

- Engineered for use with XTP DTP 24 Shielded Twisted Pair Cable
- Metal strain relief and ground bonding
- Ideal for high EMI/RFI environments
- Conductor alignment guide reduces crosstalk and signal interference

Model	Version Description	Part Number
XTP DTP 24 Plug	XTP DTP 24 Plug, Package of 10	101-005-02

DTP Cable and Accessories

XTP DTP 24 Punch Down Jack

Shielded RJ-45 Punch Down Jack Kit for Extron XTP DTP 24 Shielded Twisted Pair Cable

- Engineered for use with XTP DTP 24 Shielded Twisted Pair Cable
- Keystone style snap-in design for ease of installation in wallplates, AAP - Architectural Adapter Plates, and similar mounting frames
- Metal strain relief and ground bonding

Model	Version Description	Part Number
XTP DTP 24 Jack	XTP DTP 24 Jack, Package of 10	101-023-01

XTP DTP 24 Coupler

Shielded RJ-45 Plug Kit for Extron XTP DTP 24 Shielded Twisted Pair Cable

- Engineered for use with XTP DTP 24 Shielded Twisted Pair Cable
- Fully shielded design reduces noise due to high EMI/RFI interference
- Compatible with TIA/EIA 568A/B wiring standards

Model	Version Description	Part Number
XTP DTP 24 Coupler	XTP DTP 24 Coupler, Package of 10	101-022-02

CTU 45

Universal RJ-45 Termination Tool

- Designed for use with Extron XTP DTP 24 shielded twisted pair cables and XTP DTP 24 Plugs
- Also compatible with other modular, shielded or unshielded RJ-45 plug types
- Compatible with keyed and non-keyed modular plugs

Model	Version Description	Part Number
CTU 45	RJ-45 Crimp Tool	101-024-01

WPD 101C

WPD 100 Series

Pass-Through Wallplates - Decora for XTP DTP 24 Cable

- Designed for use with Extron XTP DTP 24 Cables, Non-Plenum part #22-236-03 and Plenum part #22-235-03
- Fully shielded design reduces noise due to high EMI/RFI interference
- Metal strain relief and ground bonding

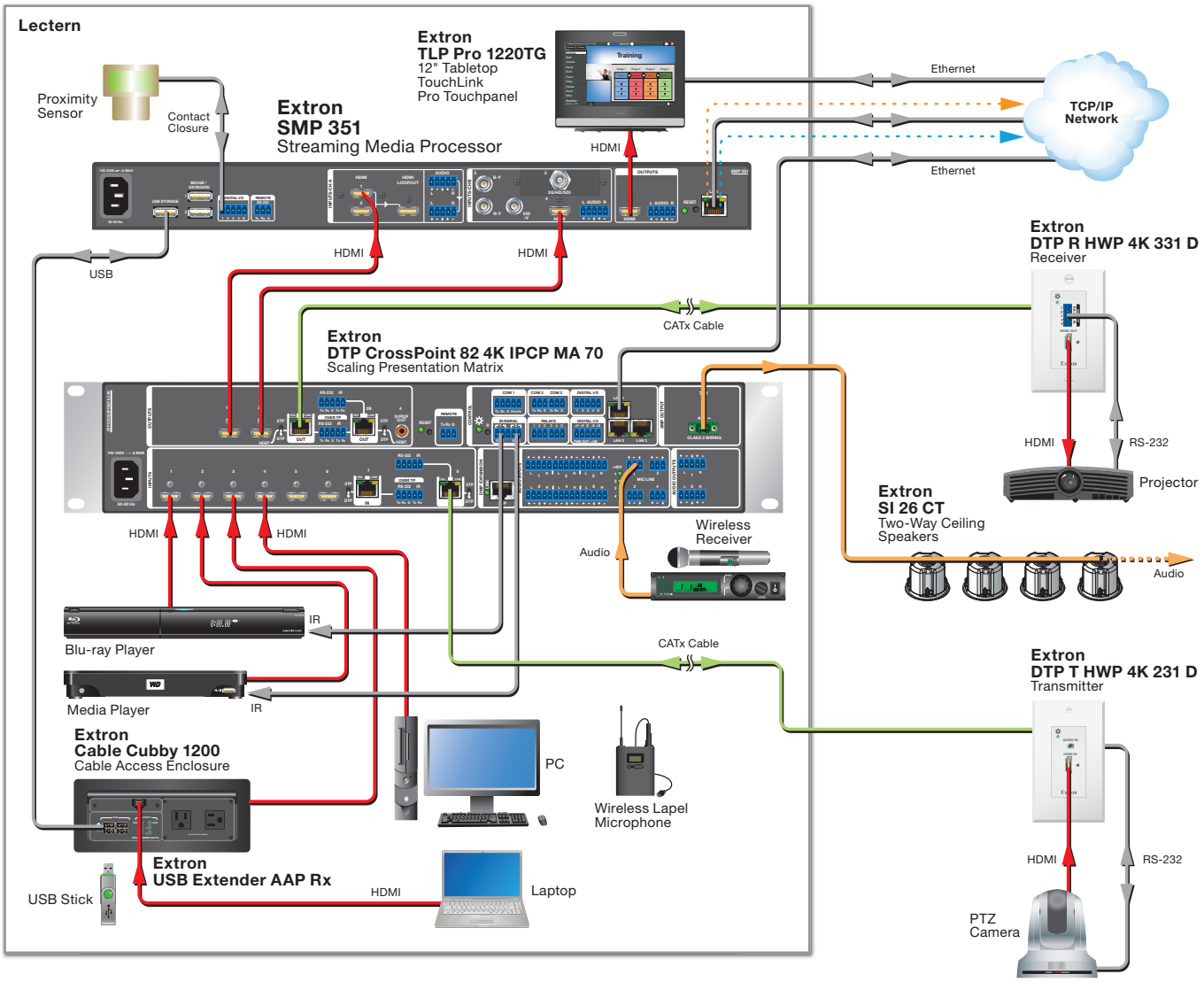
Model	Version Description	Part Number
WPD 101 C	One XTP DTP 24 Coupler	70-1053-03
WPD 102 C	Two XTP DTP 24 Couplers	70-1055-03
WPD 101 P	One XTP DTP 24 Punch Down Jack	70-1054-03
WPD 102 P	Two XTP DTP 24 Punch Down Jacks	70-1056-03

Application

CLASSROOM PRESENTATION AND STREAMING SYSTEM

The DTP CrossPoint 82 4K IPCP MA 70 can be integrated with an Extron SMP 351 streaming media processor to manage live streaming and on-demand playback of recorded presentations and courses, for local participants and distant observers. Presenters can select from a variety of source devices, including a Blu-ray player, media player, PC, or personal device at the lectern. A high-definition PTZ camera provides a visual of the presenter and an Extron DTP HDMI 4K 230 D Tx twisted pair transmitter is used to extend the camera video signal to the DTP CrossPoint 82 4K. Any source can be routed to the classroom projector through the matrix switcher using an Extron DTP R HWP 4K 331 D receiver.

Source video signals are routed from the matrix switcher to the SMP 351 to be processed, recorded, and streamed. The DTP CrossPoint 82 4K provides audio integration capabilities, including managing and processing audio from presentation sources and wireless microphones. The 100 watt mono amplifier built into the matrix switcher feeds a 70 volt speaker system for ample sound reinforcement. The audio signal is also embedded into one of the output signals fed to the SMP 351. For additional convenience, a TouchLink Pro touchpanel is connected to the matrix switcher's built-in control processor and provides intuitive controls for source selection, audio system operation, and for presenting a live preview of the SMP 351 encoded source layout.

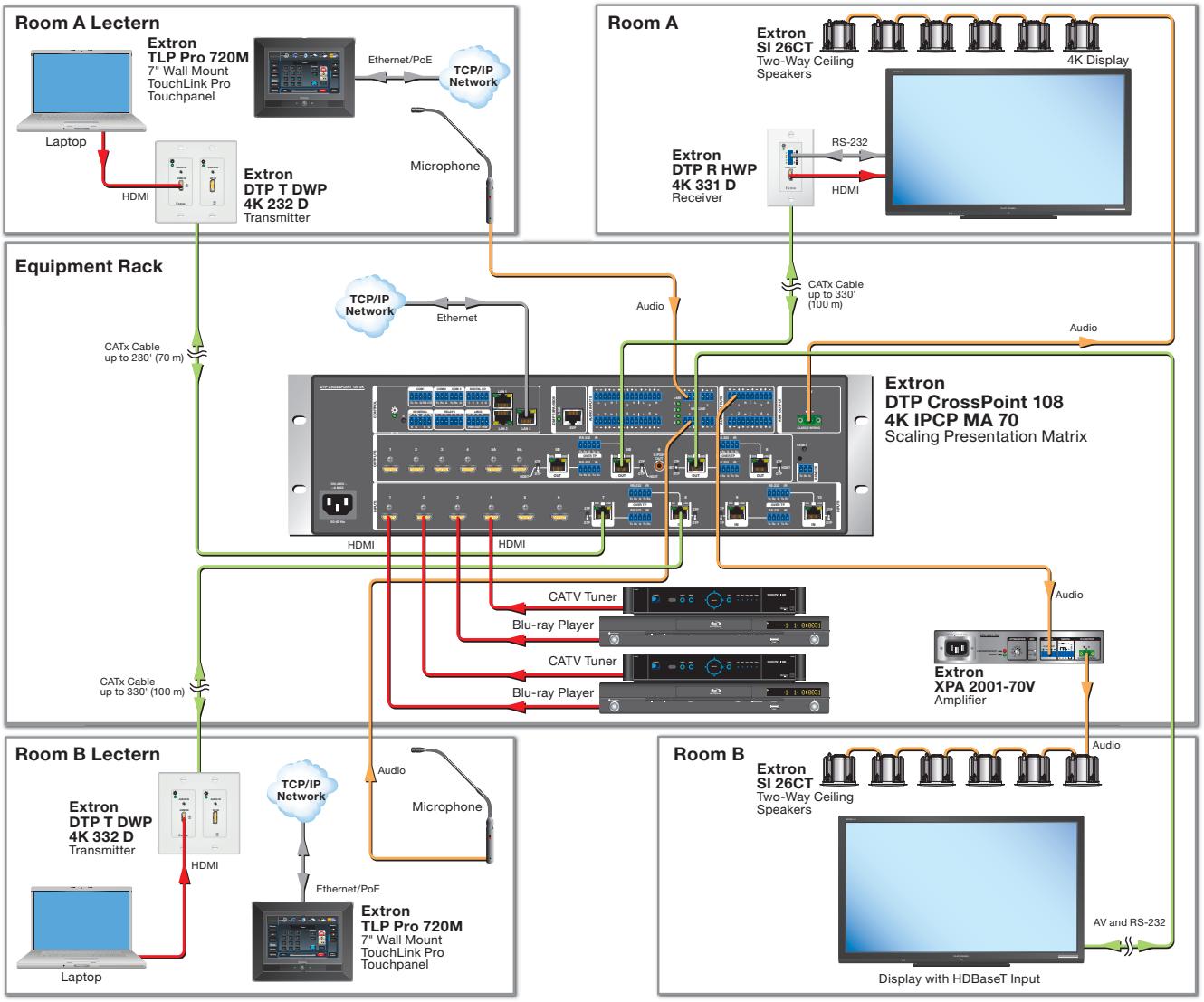


Application

DIVISIBLE ROOM

Many divisible room applications require an AV system that keeps the AV resources of two rooms exclusive to each other when the rooms are used for separate meetings, and supports sharing AV when both sections are combined into a single room. The DTP CrossPoint 86 4K provides highly reliable matrix switching and distribution to accommodate either room configuration. The independent outputs on the DTP CrossPoint 86 4K provide users with the flexibility to view a separate source at each room's display. Users can also view the same signal at both displays when the rooms are tied together. Video content can be viewed at 4K resolution on a compatible display that is connected to one of the matrix switcher's DTP outputs via a DTP receiver. Each DTP output can also be configured for viewing content on an HDBaseT-enabled display. The DTP transmission capabilities of the DTP CrossPoint 86 4K are ideal for reaching sources at the lectern, and the wall mounted displays.

Serving as the central component for full audio system integration, the DTP CrossPoint 86 4K IPCP MA 70 features powerful DSP to support distributed audio systems that can function independently or together, depending on room configuration. The internal DSP provides audio signal switching and processing for each of the source inputs and room microphones. The DTP CrossPoint 86 4K IPCP MA 70 includes an integrated 100 watt mono amplifier that can feed a 70 volt speaker system to provide ample sound reinforcement. As an additional integration convenience, source selection, transport control for a Blu-ray player and CATV tuner, and audio system control are easily accessible with TouchLink Pro touchpanels that are connected to the matrix switcher's built-in control processor.

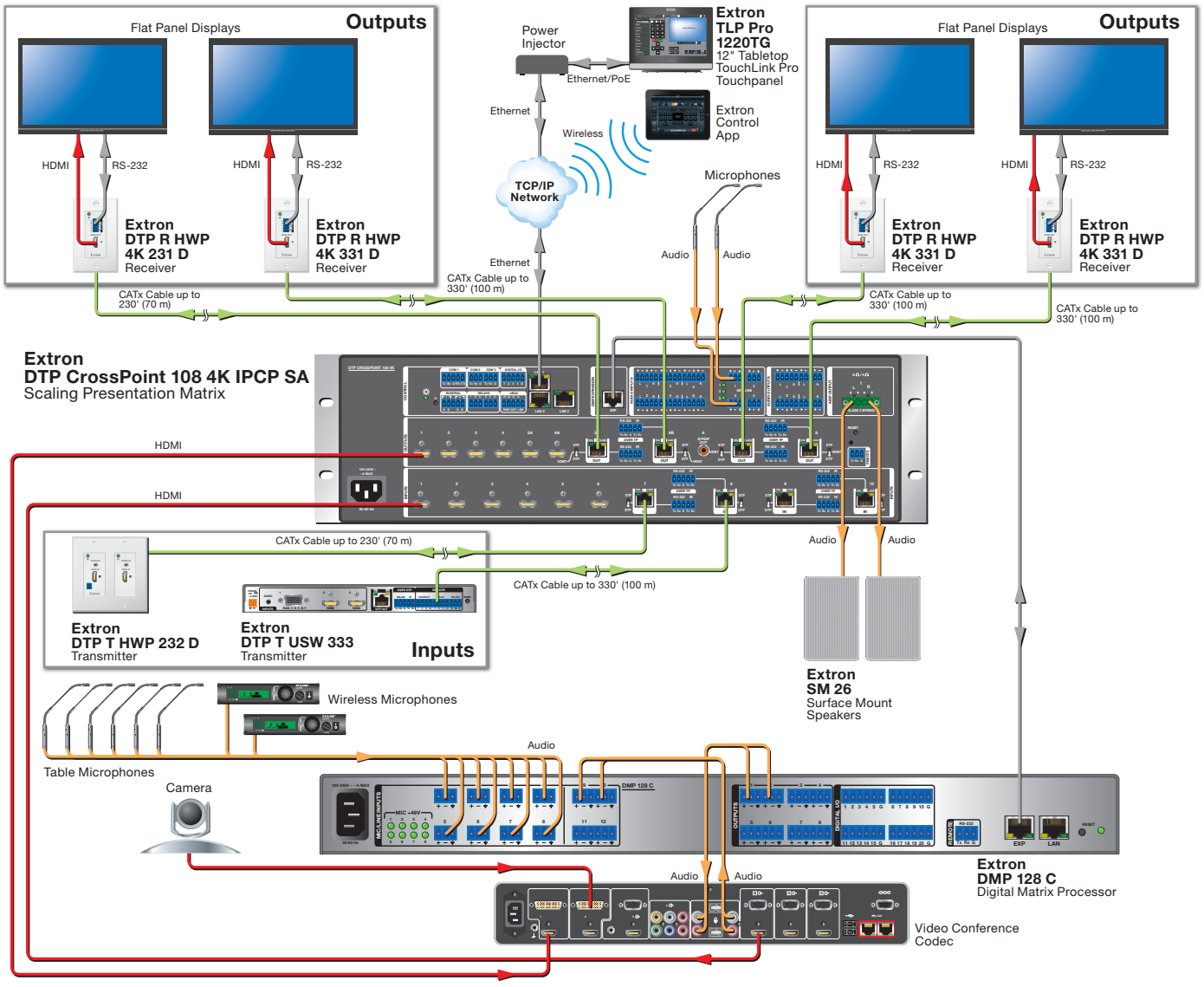


Application

INTEGRATED AEC AND AUDIO SYSTEM EXPANSION FOR SCALABILITY

The DTP CrossPoint 108 4K enables complete audio system integration in one box. It accepts mic/line inputs, analog stereo inputs, additional analog stereo inputs from DTP transmitters, and HDMI embedded audio. The comprehensive selection of outputs includes analog stereo, S/PDIF digital audio, HDMI embedded audio, stereo outputs transmitted to DTP receivers, and amplified mono or stereo audio. The matrix switcher features Extron 64-bit ProDSP technology with fully configurable EQ, filters, dynamics, delay, ducking, feedback suppression, mic/line matrix mixing options, and much more. It also includes AEC - acoustic echo cancellation and automixing for conferencing applications.

The DTP CrossPoint 108 4K is easily scalable for integrating large system applications with numerous microphones or audio destinations. An Extron-exclusive audio expansion port is provided for linking the internal DSP of the DTP CrossPoint 108 4K to an Extron DMP 128 ProDSP audio matrix processor. This allows audio channels to be exchanged between the two audio processors, with the DMP 128 providing an additional 12 input channels and eight output channels. Several DMP 128 models are available, including the DMP 128 C with eight channels of AEC processing for additional microphones. Even greater system scalability is possible when linked to a DMP 128 AT processor on a Dante network.

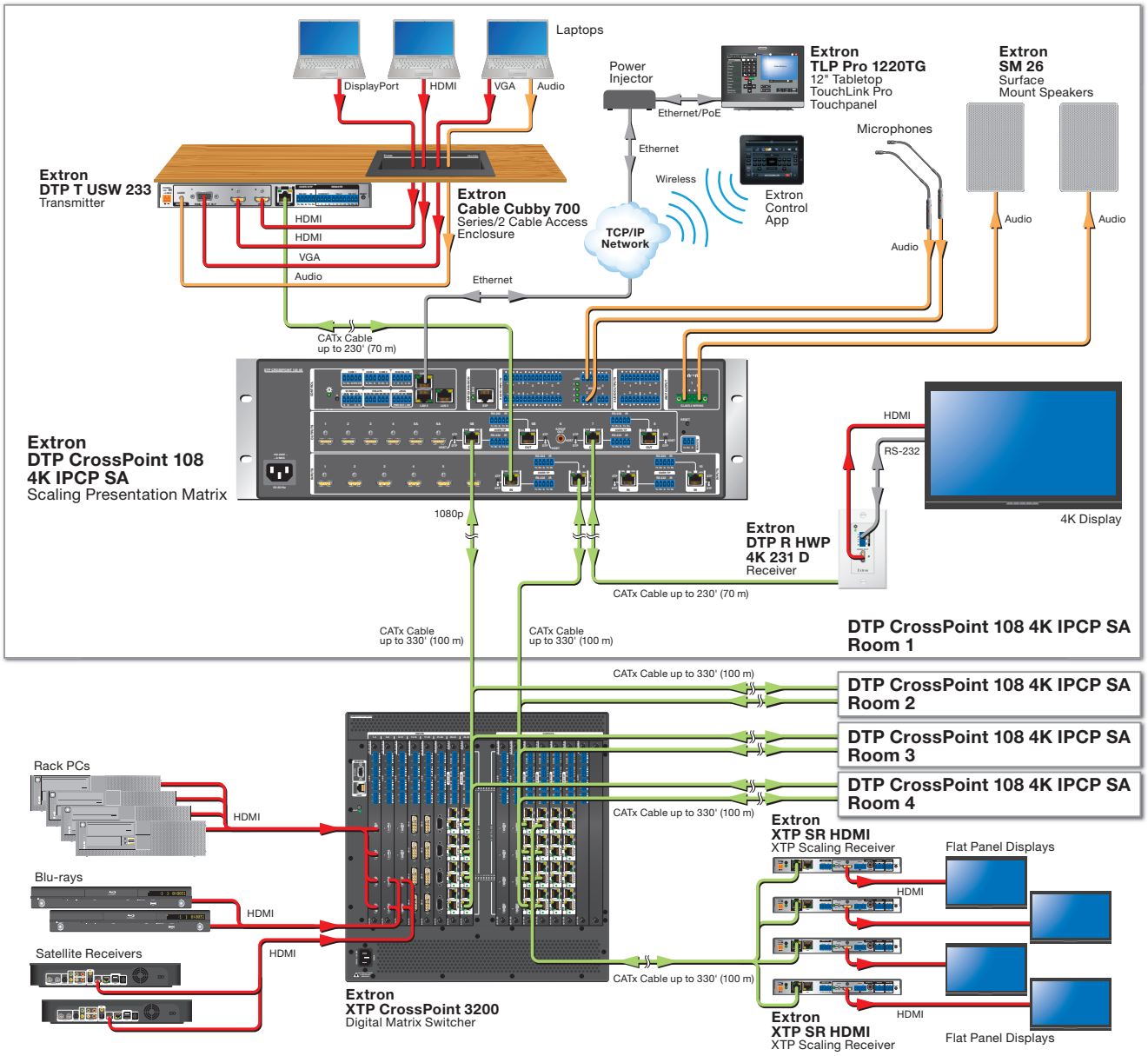


Application

INTEGRATE WITH EXTRON XTP SYSTEMS IN FACILITY-WIDE APPLICATIONS

Many large-scale applications call for centralized AV distribution plus several localized AV systems in presentation spaces such as meeting rooms, training rooms, or classrooms. A facility-wide AV infrastructure may be needed for sharing resources such as videoconferencing codecs and digital signage players, and to broadcast a local AV presentation to common areas. At the same time, a dedicated AV system for each presentation space allows dedicated switching and processing functions specific to the devices in the room, including guest laptops and tablets.

A DTP CrossPoint 108 4K can easily be integrated into an XTP II CrossPoint matrix switcher system with the ability to extend video and embedded audio, plus bidirectional RS-232 and IR signals. A DTP input or output is connected over shielded CATx cable into an XTP II CrossPoint 1600, XTP II CrossPoint 3200, or XTP II CrossPoint 6400 matrix switcher at the central rack location. Each DTP output includes a dedicated scaler powered by the advanced Extron 4K scaling engine, so that graphics or video can be optimized as necessary for a codec, or a specific display resolution or aspect ratio.



Specifications

TRUE 4K SPECIFICATION

Max 4K Capabilities		
Resolution and Refresh Rate	**Chroma Sampling**	**Max Bit Depth per Color**
4096 x 2160 at 30 Hz 3840 x 2160 at 30 Hz	4:4:4	8 bit
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz	4:2:0	8 bit

Frame rate[1]	24, 25, 30, 50, or 60 fps
Chroma sampling[1]	4:4:4, 4:2:2, or 4:2:0
Color bit depth[1]	8 bits per color
Signal type	HDMI 1.4, HDCP 1.3
Max. video data rate	10.2 Gbps (3.4 Gbps per color)

NOTE: [1]Subject to the maximum data rate limit. Use our calculator to determine video parameters supported by this data rate.

VIDEO

Routing	
DTP CrossPoint 108 4K	10 x 8 matrix
DTP CrossPoint 86 4K	8 x 6 matrix
DTP CrossPoint 84 4K	8 x 4 matrix
DTP CrossPoint 82 4K	8 x 2 matrix

VIDEO INPUT

Number/signal type	
DTP CrossPoint 108 4K	6 HDMI digital video (HDCP compliant) 4 DTP or XTP (configurable)
DTP CrossPoint 86 4K	6 HDMI digital video (HDCP compliant) 2 DTP or XTP (configurable)
DTP CrossPoint 84 4K	6 HDMI digital video (HDCP compliant) 2 DTP or XTP (configurable)
DTP CrossPoint 82 4K	6 HDMI digital video (HDCP compliant) 2 DTP or XTP (configurable)

MATRIX VIDEO OUTPUTS (NON SCALED)

Number/signal type	
DTP CrossPoint 108 4K	4 HDMI digital video (HDCP compliant)
DTP CrossPoint 86 4K	2 HDMI digital video (HDCP compliant)
DTP CrossPoint 84 4K	2 HDMI digital video (HDCP compliant)
DTP CrossPoint 82 4K	0

SCALED TP OUTPUTS

Number/signal type	
DTP CrossPoint 108 4K	4 DTP, XTP, or HDBaseT (configurable) 2 buffered HDMI digital video (HDCP compliant)
DTP CrossPoint 86 4K	4 DTP, XTP, or HDBaseT (configurable) 2 buffered HDMI digital video (HDCP compliant)
DTP CrossPoint 84 4K	2 DTP, XTP, or HDBaseT (configurable) 2 buffered HDMI digital video (HDCP compliant)
DTP CrossPoint 82 4K	2 DTP, XTP, or HDBaseT (configurable) 2 buffered HDMI digital video (HDCP compliant)
Video input	
Resolution range	640x480 to 1600x1200 and 1920x1200* 480i, 480p, 576i, 576p, 720p, 1080i, 1080p, and 2K through 4K *reduced blanking
Scaled resolutions	640x480[8], 800x600[8], 852x480[8], 1024x768[8], 1024x852[8], 1024x1024[8],1280x768[8], 1280x800[8], 1280x1024[8], 1360x765[8], 1360x768[8], 1365x768[8], 1366x768[8], 1365x1024[8], 1400x1050[8], 1440x900[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,], 1920x2160[1,2,3,4,5,6,7,8], 1920x2400[2,3,5,8], 2048x1200[8], 2048x1536[8], 2048x2160[1,2,3,4,5,6,7,8], 2048x2400[2,3,5,8], 2560x1080[8], 2560x1440[8], 2560x1600[8], 3840x2160[1,2,3,4,5], 3840x2400[2,3,5], 4096x2160[1,2,3,4,5], 4096x2400[2,3,5] , 1 = at 23.98 Hz, [2] = at 24 Hz, [3] = at 25 Hz, [4] = at 29.97 Hz, [5] = at 30 Hz, [6] = at 50 Hz, [7] = at 59.94 Hz, [8] = at 60 Hz

LOGOS

Image file formats	BMP, JPG, PNG, TIFF
Logo effects	Transparency, RGB key, level key, alpha key

SHIELDED TWISTED PAIR INTERCONNECTION

Connectors	Female RJ-45
Signal transmission distance	
Resolutions up to 1920x1200 and 1080p	
DTP 330	Up to 330' (100 m) using shielded twisted pair cable or XTP DTP 24 TP cable
DTP 230	Up to 230' (70 m) using shielded twisted pair cable or XTP DTP 24 TP cable
2560x1600* and 4K @ 30 Hz (* reduced blanking)	
DTP 330	Up to 330' (100 m) using shielded twisted pair cable or XTP DTP 24 TP cable
DTP 230	Up to 130' (40 m) using shielded twisted pair cable or XTP DTP 24 TP 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.

NOTE: Input and output mode signaling:

DTP: HDMI with embedded audio, analog audio, RS-232 and IR, and remote power
XTP: HDMI with embedded audio plus RS-232 and IR
HDBT: HDMI with embedded audio plus RS-232 and IR

AUDIO SYSTEM (MIC/LINE INPUT TO LINE OUTPUT)

Frequency response	20 Hz to 20 kHz, ±0.2 dB
THD + Noise	0.01% at 1 kHz nominal level
S/N	>105 dB at maximum balanced output (unweighted)

AUDIO

Routing	
DTP CrossPoint 108 4K	10 x 8 stereo switching matrix 4 x 4 microphone mixing matrix
DTP CrossPoint 86 4K	8 x 6 stereo switching matrix 4 x 4 microphone mixing matrix
DTP CrossPoint 84 4K	8 x 4 stereo switching matrix 4 x 4 microphone mixing matrix
DTP CrossPoint 82 4K	8 x 2 stereo switching matrix 4 x 4 microphone mixing matrix
Supported formats — Pass through	
HDMI connectors	LPCM up to 7.1/24-bit/192kHz, Dolby TrueHD, Dolby Digital Plus, Dolby Digital EX, Dolby Digital 5.1, Dolby Digital 2/0 Surround, Dolby Digital 2/0, DTS-HD Master Audio, DTS-HD, DTS ES Discrete 6.1, DTS ES Matrix 6.1, DTS Digital Surround 5.1, DTS 2 Channel
DTP connectors	De-embedded from HDMI [PCM only] or remote balanced/unbalanced analog

AUDIO INPUT

Connectors	
DTP CrossPoint 108 4K	(6) 3.5 mm captive screw connectors, 5 pole for analog line level inputs 6 female HDMI type A 4 female RJ-45
DTP CrossPoint 86 4K	(6) 3.5 mm captive screw connectors, 5 pole for analog line level inputs 6 female HDMI type A 2 female RJ-45

Specifications

DTP CrossPoint 84 4K	(6) 3.5 mm captive screw connectors, 5 pole for analog line level inputs 6 female HDMI type A 2 female RJ-45
DTP CrossPoint 82 4K	(6) 3.5 mm captive screw connectors, 5 pole for analog line level inputs 6 female HDMI type A 2 female RJ-45

MIC/LINE INPUT

Number/signal type	4 mono, mic/line, balanced/unbalanced (with phantom power)
DC phantom power	+48 VDC, ±10% (inputs 1-4) switched on or off

AUDIO OUTPUT

Connectors	
DTP CrossPoint 108 4K	
	6 female HDMI 4 RJ-45 (4) 3.5 mm captive screw, 5 pole 1 RCA
DTP CrossPoint 86 4K	4 female HDMI 4 RJ-45 (4) 3.5 mm captive screw, 5 pole 1 RCA
DTP CrossPoint 84 4K	4 female HDMI 2 RJ-45 (4) 3.5 mm captive screw, 5 pole 1 RCA
DTP CrossPoint 82 4K	2 female HDMI 2 RJ-45 (2) 3.5 mm captive screw, 5 pole 1 RCA

AUDIO OUTPUT

Power amplifier (DTP CrossPoint 4K IPCP SA and DTP CrossPoint 4K IPCP MA models)	
Number/signal type	
SA models	1 stereo or mono (2 channels total)
MA models	1 mono, 70 V
Connector	
NOTE: This connector accepts wires of 22 AWG to 12 AWG.	
SA models	(1) 5 mm screw lock captive screw connector, 4 pole
MA models	(1) 5 mm screw lock captive screw connector, 2 pole
Load impedance	
SA models	4 ohms minimum
MA models	50 ohms minimum
High pass filter (MA models)	80 Hz, 12 dB/octave roll off
Output power	
SA models	25 watts (rms) per channel, 8 ohms, 1 kHz, 0.1% THD 50 watts per channel, 4 ohms, 1 kHz, 0.1% THD
MA models	100 watts (rms) @ 70 V, 1 kHz, 0.1% THD
Protection	Clip limiting, thermal, short circuit, DC output
Frequency response	
SA models	20 Hz to 20 kHz, +1/–3 dB @ 1 watt
MA models	80 Hz to 20 kHz, +1/–3 dB @ 1 watt
THD + Noise	<0.1%, 1 kHz, 3 dB below clipping
S/N	>90 dB, 20 Hz to 20 kHz, unweighted

COMMUNICATIONS — SWITCHER

Serial control port	1 bidirectional RS-232, 3.5 mm captive screw connector, 3 pole (rear panel)
USB control port	1 front panel female USB mini-B
Ethernet control port	1 female RJ-45 connector

CONTROL PROCESSOR — DTP CROSSPOINT 4K IPCP MODELS

Memory	
SDRAM	512 MB
Flash	4.5 GB
Software and control options	
Software	Extron Global Configurator Plus and Professional for Windows®
Control options	GlobalViewer®, TouchLink® for Web, TouchLink for iPad®, or TouchLink Pro touchpanels
Ethernet control	
Network switch	1 unmanaged 3 port switch
Data rate	10/100/1000Base-T, half/full duplex with autodetect
Serial control	
Quantity/type	1 bidirectional RS-232, RS-422, RS-485 (port 1) 2 bidirectional RS-232 (ports 2 and 3)
Digital I/O control	
Quantity/type	4 digital input/output (configurable)
IR/serial control	
Quantity/type	2 programmable: unidirectional RS-232 (±5 V), or TTL level (0 to 5 V) infrared (carrier and non-carrier) up to 300 kHz
Relay control	
Quantity/type	4 normally open relays

GENERAL

Power supply	Internal Input: 100-240 VAC, 50-60 Hz
Power consumption	
IPCP models	184 Watts
Non-IPCP models	154 watts
Enclosure dimensions	
DTP CrossPoint 108 4K, DTP CrossPoint 86 4K	5.25" H x 17.4" W x 15.3" D (3U high, full rack wide) (13.3 cm H x 43.2 cm W x 38.9 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
DTP CrossPoint 84 4K, DTP CrossPoint 82 4K	3.5" H x 17.4" W x 15.3" D (2U high, full rack wide) (8.9 cm H x 43.2 cm W x 38.9 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
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.

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

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REV. D
Letter - English - NP

DTP T DSW 4K 233
DTP T DSW 4K 333

MULTI-FORMAT SWITCHER WITH INTEGRATED DTP TRANSMITTER AND AUDIO EMBEDDING

DTP SYSTEMS 4K UHD

DTP T DSW 4K 233

DTP T DSW 4K 333

The Extron DTP T DSW 4K 233 and DTP T DSW 4K 333 switchers provide signal extension for up to three sources, sending DisplayPort, HDMI, or analog video, audio, and control up to 230 feet (70 meters) or 330 feet (100 meters) over a shielded CATx cable to Extron DTP®-enabled products. The HDCP-compliant switchers include several integrator-friendly features in a low profile enclosure that enables discreet installation in a wide variety of applications.

- **Transmits DisplayPort, HDMI, or VGA plus control and analog audio up over a shielded CATx cable**
- **One DisplayPort, one HDMI, and one VGA input**
- **Auto-switching between inputs**
- **Supports computer and video resolutions up to 4K, including 1080p/60 Deep Color**
- **Analog stereo audio embedding**
- **Extron XTP DTP 24 shielded twisted pair cable is strongly recommended**
- **DTP® output is compatible with HDBaseT-enabled devices**
- **Accepts additional analog stereo audio signals**
- **Audio input assignment**
- **Bidirectional RS-232 and IR pass-through for AV device control**
- **EDID Minder®**
- **Compatible with all DTP 230 and DTP 330 Series receivers and DTP-enabled products**
- **1" (2.5 cm) high, half rack width metal enclosure**
- **Highly reliable, energy efficient external universal power supply included**

DESCRIPTION

The Extron **DTP T DSW 4K 233** and **DTP T DSW 4K 333** are three input switchers for sending DisplayPort, HDMI, or analog video, audio, and control over a shielded CATx cable to Extron DTP-enabled products. The DTP T DSW 4K 233 extends signals up to 230 feet (70 meters), while the DTP T DSW 4K 333 extends signals up to 330 feet (100 meters). They provide DisplayPort, HDMI, and VGA inputs, and one DTP output. The DTP T DSW 4K models support digital video resolutions up to 4K, including 2560x1600 and 1080p/60 Deep Color. Analog stereo audio embedding and RS-232 remote control facilitate integration in professional environments. Integrator-friendly features include EDID Minder, auto-switching between inputs, audio input assignment, and bidirectional RS-232 and IR pass-through for remote AV device control. The low profile enclosure enables discreet placement in lecterns, beneath tables, or wherever needed to meet application requirements.

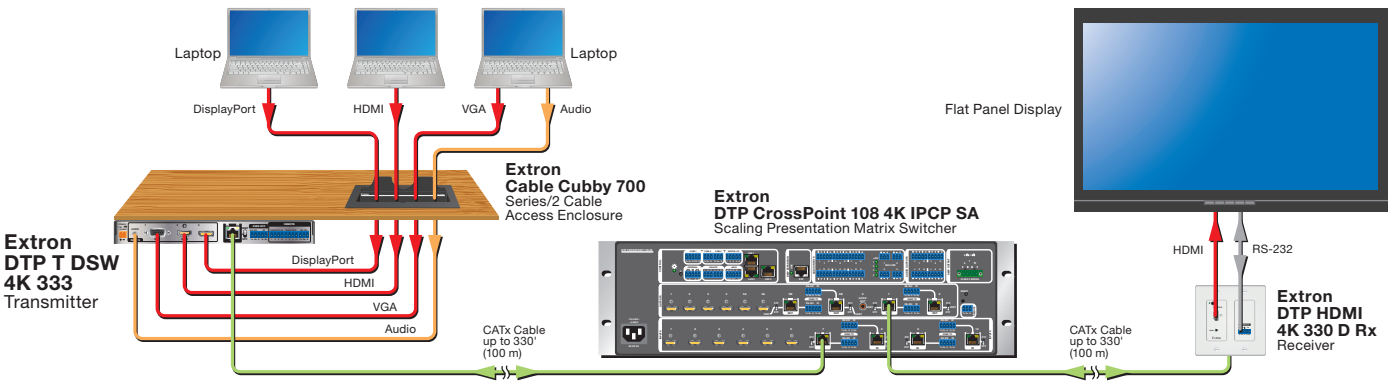
The DTP T DSW 4K models provide reliable switching and transmission of DisplayPort, HDMI, and analog video signals. They can automatically switch between digital and analog sources, plus they support RS-232 and contact closure remote control with tally output for easy operation in unmanaged locations. Stereo analog audio can be embedded onto the digital video output signal for transport over DTP. The analog audio can be assigned to any of the three video inputs, or it can be set to follow the input switch.

To enhance and simplify integration of sources and displays, the DTP T DSW 4K switchers feature EDID Minder. EDID Minder is an Extron-exclusive technology that manages EDID communication between the display device and input sources to ensure that the correct video formats are displayed reliably.

The switchers support simultaneous transmission of bidirectional RS-232 and IR signals from a control system for AV device control. For added installation flexibility, the DTP T DSW 4K transmitters can supply power to a DTP receiver over the shielded twisted pair cable. This simplifies installation and allows both devices to share one power supply. The DTP T DSW 4K can be integrated with an Extron DTP CrossPoint Presentation Matrix Switcher, or other DTP-enabled products to support sources at remote locations. It also offers an HDBaseT output mode for sending digital video and embedded audio, plus bidirectional control signals to any HDBaseT-enabled display.

KEY FEATURES

- **Transmits DisplayPort, HDMI, or analog video plus control and analog audio over a shielded CATx cable**
- **One DisplayPort input, one HDMI input, and one VGA input**
- **Auto-switching between inputs** – Auto-switching allows for simple, unmanaged installation in locations such as in a podium or under a conference table. When multiple inputs are active, the switching priority is configurable.
- **Supports computer and video resolutions up to 4K, including 1080p/60 Deep Color**
- **Analog stereo audio embedding**
- **Compatible with CATx shielded twisted pair cable**
- **Extron XTP DTP 24 shielded twisted pair cable is strongly recommended for optimal performance**
- **DTP output is compatible with HDBaseT-enabled devices**
- **Audio input assignment** – The analog audio input can be assigned to any video input, or it can be set to follow the input switch.
- **Supports multiple embedded audio formats**
- **Bidirectional RS-232 and IR pass-through for AV device control**
- **Remote power capability** – For simplified installation, the transmitter can supply power to a DTP receiver over the twisted pair connection.
- **Supports DisplayPort SST - Single Stream Transport data rates up to 10.8 Gbps**
- **Supported HDMI specification features include data rates up to 10.2 Gbps, Deep Color up to 12-bit, 3D, and HD lossless audio formats**
- **Digital conversion of analog input signals**
- **RS-232 control port**
- **Contact closure remote control with tally output** – Allows for remote selection of an input channel, while a tally output provides +5 VDC to light an LED to indicate the currently selected input.



COMPATIBLE WITH ALL EXTRON DTP RECEIVERS

Extron offers a wide selection of HDCP-compliant DTP twisted pair receivers for extending video, audio, and control signals over a shielded twisted pair cable. Designed for rack mount and architectural applications, the DTP receivers provide convenient connection points at remote display locations.

- **Models available to support DisplayPort, HDMI, and DVI**
- **Built-in signal conversion** – Any DTP receiver is compatible with any DTP transmitter regardless of video format
- **All DTP receivers support 4K video**

COMPATIBLE WITH ALL EXTRON DTP SYSTEMS PRODUCTS

Extron DTP switchers and matrix switchers are powerful, all-in-one AV integration solutions for presentation environments. Products range from the MPS 602 six input presentation switcher to the DTP CrossPoint 108 4K scaling matrix switcher with exclusive Vector 4K scaling. Models are available to deliver all the core functionality of an AV system including high performance switching, scaling, comprehensive audio DSP, a choice of energy efficient 100 watt Class D mono or stereo audio power amplifiers, a built-in Extron IPCP Pro 350 control processor for complete AV system control, as well as integrated extension of video, audio, and control signals over a shielded CATx cable.

- **MPS 602** – Media Presentation Switcher with DTP Extension
- **IN1608** – Eight-Input Scaling Presentation Switcher with DTP Extension
- **DTP CrossPoint 84** – 8x4 Scaling Presentation Matrix Switcher
- **DTP CrossPoint 108 4K** –10x8 Seamless 4K Scaling Presentation Matrix Switcher

SPECIFICATIONS

TRUE 4K SPECIFICATION

Max. 4K Capabilities		
Resolution and Refresh Rate	**Chroma Sampling**	**Max Bit Depth per Color**
4096 x 2160 at 30 Hz 3840 x 2160 at 30 Hz	4:4:4	8 bit
4096 x 2160 at 60 Hz 3840 x 2160 at 60 Hz	4:2:0	8 bit

Frame rate[1]	24, 25, 30, 50, or 60 fps
Chroma sampling[1]	4:4:4, 4:2:2, or 4:2:0
Color bit depth[1]	8 bits per color
Signal type[1]	HDMI 1.4 , DisplayPort 1.1a, HDCP 1.4
Max. video data rate[1]	
HDMI	10.2 Gbps (3.4 Gbps per color)
DisplayPort	10.8 Gbps (2.7 Gbps per lane)

NOTE: [1]Subject to the maximum data rate limit. Use our calculator at **www.extron.com/4Kdatarate** to determine video parameters supported by this data rate.

VIDEO

VGA input	
Gain	Unity
Bandwidth	170 MHz (-3 dB)
Crosstalk	-50 dB @ 10 MHz, -30 dB @ 100 MHz
HDMI input	
Maximum data rate	10.2 Gbps (3.4 Gbps per color)
Maximum pixel clock	300 MHz
DisplayPort input	
Maximum data rate	10.8 Gbps (2.7 Gbps per lane)
Maximum pixel clock	300 MHz

VIDEO INPUT

Connectors	
VGA input	1 female 15-pin HD
HDMI input	1 female HDMI, type A
DisplayPort input	1 female DisplayPort
VGA input	
Minimum/maximum levels	Analog 0.3 V to 1.5 Vp-p with no offset
Horizontal frequency	15 kHz to 145 kHz
Vertical frequency	30 Hz to 170 Hz

VIDEO OUTPUT

Number/signal type	
DTP T DSW 4K 233	1 DTP 230 (output)
DTP T DSW 4K 333	1 DTP 330 (output)

INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER

Connectors	1 RJ-45 jack
DTP signal	
Signal transmission distance	
DTP T DSW 4K 233	
1080p @ 60 Hz	Up to 230' (70 m) using shielded twisted pair (STP) cable or XTP DTP 24 cable
2560x1600 @ 60 Hz	Up to 130' (40 m) using STP cable or XTP DTP 24 cable
4K/UHD @ 30 and 60 Hz	Up to 130' (40 m) using STP cable or XTP DTP 24 cable
DTP T DSW 4K 333	
1080p @ 60 Hz	Up to 330' (100 m) using shielded twisted pair (STP) cable or XTP DTP 24 cable
2560x1600 @ 60 Hz	Up to 330' (100 m) using STP cable or XTP DTP 24 cable
4K/UHD @ 30 and 60 Hz	Up to 330' (100 m) using STP cable or XTP DTP 24 cable
Cable requirements	Solid conductor, 24 AWG or better
Cable recommendations	400 MHz bandwidth STP cable

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

NOTE: Output mode signaling:

DTP: HDMI with embedded audio, analog audio, RS-232 and IR, and remote power

HDBaseT: HDMI with embedded audio plus RS-232 and IR

AUDIO

Frequency response	20 Hz to 20 kHz, ±0.5 dB
THD + Noise	0.03% @ 1 kHz at nominal level
S/N	>90 dB at maximum input (unweighted)
Stereo channel separation	>80 dB @ 1 kHz

AUDIO INPUT

Connectors	(2) 3.5 mm stereo jack, 2 channel; tip (L); ring (R); sleeve (Gnd)

CONTROL/REMOTE — SWITCHER

Serial control port	RS-232 via 1 rear panel 3.5 mm, 3-pole captive screw connector
Contact closure	(1) 3.5 mm, 4-pole captive screw connector
Tally output	(1) 3.5 mm, 4-pole captive screw connector
USB control port	1 front panel female mini USB B
Program control	Extron Simple Instruction Set (SIS™)

CONTROL/REMOTE — EXTERNAL DEVICE (RS-232/IR OVER TP)

Serial control port	Bidirectional RS-232 via 1 rear panel 3.5 mm, 5-pole captive screw connector (connector is shared with IR control ports)
Baud rate and protocol	300 to 115200 baud, 8 or 7 data bits, 1 or 2 stop bits, non-parity (default), even or odd parity
IR pass-through control port	1 bidirectional rear panel 3.5 mm, 5-pole captive screw connector(connector is shared with RS-232 control port) TTL level (0 to 5 V) modulated infrared control from 30 kHz up to 60 kHz

GENERAL

Power supply	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 2 A, 24 watts

NOTE: This product requires a locally connected power supply. It can provide remote DC power to a connected DTP receiver over twisted pair.

Rack mount	Yes, with optional rack shelf kit
Enclosure dimensions	1.0" H x 8.75" W x 6.0" D (1" high, half rack wide) 2.5 cm H x 22.2 cm W x 15.2 cm D (depth excludes connectors)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE**, C-tick, FCC Class A**, ICES
Environmental	Complies with the appropriate requirements of RoHS, WEEE

NOTE: **CE and FCC testing is conducted with STP cable.

Model	Version Description	Part number
DTP T DSW 4K 233	Three Input Switcher w/ DTP Tx - 230 ft (70 m)	60-1487-12
DTP T DSW 4K 333	Three Input Switcher w/ DTP Tx - 330 ft (100 m)	60-1487-52

For complete specifications, please go to www.extron.com
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REV. A1
Letter - English - NP

SHURE®

LEGENDARY
PERFORMANCE™

Microflex® Microphones

THERE'S NEVER BEEN A MORE FLEXIBLE CHOICE.

MICROFLEX® MICROPHONES: WORK A ROOM IN MORE WAYS THAN EVER.

Combining sleek, low profile aesthetics and a complete selection of microphones and mounting options, Microflex microphones include the highest standard of quality and efficiency for installed audio applications.

Get the exact fit for your professional installation; knowing it's backed by the superior sound quality, reliability, and durability you only get from Shure.

The New Height of Flexibility.

MX405/MX410/MX415
Modular Gooseneck Microphones

Flexible in more ways than one, Microflex Modular Gooseneck microphones deliver unsurpassed style and performance for conference rooms and similar applications.

Offering desktop or mounted bases, wired or wireless options, and even interchangeable cartridges, it's easy to get the perfect fit for your conferencing installation. Fully compatible with SLX® wireless systems, including the SLX4L wireless receiver with logic output for applications requiring logic functionality.

- Available in 5 inch (12.7 cm), 10 inch (25.4 cm) and 15 inch (38.1 cm) lengths
- Cardioid and supercardioid polar patterns
- Bi-color status indicator (standard models) or single color light ring ("R" models)
- Programmable mute switch (desktop models only)
- Logic input/output for remote LED and mute control dependent on base option
- Surface-mount and wired or wireless desktop base options

MX415, MX410 and MX405 with MX890 Wireless Desktop Base

MX405 (with MX400SMP), MX410 (with MX400DP), MX415 without base

Available Models

MX405 C/S
5 inch (12.7 cm), includes surface mount preamp

MX405R N
5 inch (12.7 cm), includes light ring, surface mount preamp

MX405LP C/S
5 inch (12.7 cm), less preamp

MX405RLP N
5 inch (12.7 cm), light ring, less preamp

MX410 C/S
10 inch (25.4 cm), includes surface mount preamp

MX410R N
10 inch (25.4 cm), includes light ring, surface mount preamp

MX410LP C/S
10 inch (25.4 cm), less preamp

MX410RLP N
10 inch (25.4 cm), light ring, less preamp

MX415 C/S
15 inch (38.1 cm), includes surface mount preamp

MX415R N
15 inch (38.1 cm), includes light ring, surface mount preamp

MX415LP C/S
15 inch (38.1 cm), less preamp

MX415RLP N
15 inch (38.1 cm), light ring, less preamp

Mounting Options

MX400DP
Desktop Base

MX890
Wireless Desktop Base

MX400SMP
Surface mount Preamp

C = Cardioid, **S** = Supercardioid, **N** = No Cartridge

The MX890 Wireless Desktop Base is compatible with SLX4 and SLX4L Wireless Receivers.

One Microphone That Performs Like Many.

MX396

Multi Element Boundary Microphone

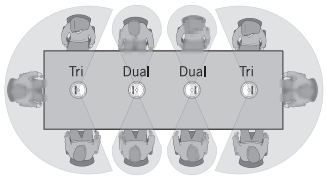
The Microflex® Multi-Element Boundary microphone delivers a unique and versatile tool for conference room installations. Clean and simple in appearance, Multi-Element Boundary mics come in two or three element configurations, combining the coverage of multiple microphones into one small, compact package.

- Multiple coverage patterns (see diagram below)
- Individual audio output for each element
- Bi-color status indicator
- Programmable mute switch
- TTL Logic LED input and TTL Logic switch output

Available Models

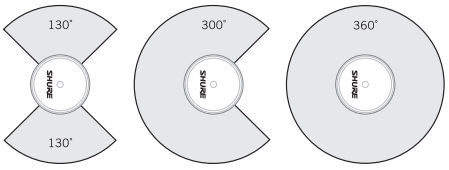
MX396 C-DUAL
Dual-Element Configuration

MX396 C-TRI
Tri-Element Configuration



Example of Boardroom Table Mic Placement Coverage

Side view



Cross-Table Coverage (Dual) | End-of-Table Coverage (Tri) | Center-of-Table Coverage (Tri)

Wireless. Limitless.

MX690

The Microflex Wireless Boundary microphone offers total freedom of placement with no holes to drill or cables to run for installation. It is the perfect solution for conference and meeting spaces where users demand flexibility and high performance. Compatible with Shure SLX® wireless systems, including the SLX4L receiver with logic output for applications requiring logic functionality.

- Sleek, low profile design
- Frequency agile, microprocessor controlled transmitter
- Bi-color status indicator
- IR link to SLX receiver for automatic frequency synchronization
- Programmable mute function
- Battery level indicator
- Operates on two AA batteries
- TTL Logic transmitter status and TTL Logic battery level signal when used with SLX4L wireless receiver

Available Models

MX690
Wireless Boundary Mic, Cardioid

Front view

Side view

A Microphone That Goes Above and Beyond.

MX202

Overhead Microphones

Microflex® Overhead microphones capture sound from speakers, choirs, and stages conveniently and unobtrusively from above. Compact and flexible, each feature a four-inch gooseneck and versatile condenser cartridges for accurate sound reproduction in any setting. The available preamp options offer easy installation in ceilings or microphone stands, and provide accurate, reliable sound reproduction.

- Cardioid and supercardioid polar patterns
- Interchangeable condenser cartridges
- Inline or plate mount preamp
- Optional desk stand also available

Available Models

MX202B C/S/N
Black In-line preamplifier, stand adapter

MX202W C/S/N
White In-line preamplifier, stand adapter

MX202BP C/S/N
Black Plate-mounted preamplifier

MX202WP C/S/N
White Plate-mounted preamplifier

Mounting Options

A202BB
Microphone Desk/Table Stand

C = Cardioid, **S** = Supercardioid, **N** = No Cartridge

Freedom To Move, Freedom To Hear.

MX150
MX183/MX184/MX185

Lavalier Microphones

Attached to a tie or lapel, Microflex Lavalier microphones offer freedom of movement to any situation involving voice reproduction. As stylish as they are convenient, lavaliers are available in a wide array of sizes, including two subminiature microphone models, and are compatible with all Shure wireless platforms.

- Cardioid, supercardioid and omnidirectional polar patterns
- Phantom-powered preamp
- Exceptionally low handling noise
- Includes tie clip, dual tie clip and snap-fit windscreen

MX150/O

MX183/184/185

Available Models

MX150/O
Subminiature Omnidirectional

MX150/C
Subminiature Cardioid

MX180/N
No Cartridge

MX183
Omnidirectional

MX184
Supercardioid

MX185
Cardioid

Low Profile, High Reliability.

MX153

Earset Headworn Microphone

The Shure Microflex® MX153 is a professional subminiature earset microphone ideal for speech and other applications requiring low-profile discreet placement where improved gain before feedback over lavalier microphones is desired. Delivering exceptional speech clarity, the MX153 is ideal for corporate presentations, houses of worship, AV conferencing and live sound reinforcement.

- Subminiature, omnidirectional cartridge offers superior speech clarity
- Ultra-lightweight, comfortable, flexible design is easy to place over either ear
- Kevlar reinforced, soft flex cable
- Matte Black, Tan, and Cocoa color options available

MX153 in Black, Cocoa, Tan

Available Models

MX153/BO-TQG
Black
MX153/CO-TQG
Cocoa
MX153/TO-TQG
Tan

THE SOUND HEARD AROUND THE WORLD.

Shure has long been the global leader in providing audio solutions for all types of commercial installations. Whether in churches, schools, boardrooms, or courtrooms, you'll find Microflex microphones providing superior audio and Shure's world-class service and support.

Utilized for everything from auditoriums to band rooms, Microflex microphones have delivered exceptional audio quality to the hallowed halls of academia for years. By providing the educational institutions of the world with exceptional quality products, Shure tirelessly commits themselves to delivering unparalleled service and support.

Microflex microphones have adorned the podiums and committee rooms of government institutions around the world. From lavaliers to overheads to goosenecks, Shure audio products deliver exceptional sound and afford maximum flexibility in even the most acoustically challenging environments.

Proven reliable in installations worldwide, Microflex microphones are well suited to meet the diverse audio requirements of any House of Worship. Ideal for choirs, lecterns, and altars, all Microflex products are both attractive and inconspicuous and deliver the superior sound quality you can expect from Shure.

Microflex microphones provide solutions for meeting rooms, video conferences, large presentations or any other situation the business world throws at you. Gooseneck mics meet the needs of any size conference table while low-profile boundary mics are discreet and unobtrusive yet provide crystal clear audio. Additionally, CommShield™ technology guards against unwanted interference.

COMMSHIELD® TECHNOLOGY IMPROVES RF RESISTANCE.

All Microflex® models offer CommShield Technology, which guards against unwanted radio interference from consumer wireless devices such as cell phones and PDA's. Shure engaged their development teams to redesign Microflex microphones to be highly resistant to radio frequency interference such as might be experienced with GSM cell phone technology and to implement design techniques such as multilayer circuit boards, improved grounding techniques, tighter enclosures for improved shielding, and improved microphone cable and audio connectors. The combination of improved techniques is utilized to deliver Microflex microphones that are highly resistant to intense nearby radio signals.

CommShield® Technology

Compact, Clear, and Connected.

MX391/MX392/MX393

Wired Boundary Microphones

With slim design and superior audio reproduction, Microflex Boundary microphones are the ideal conference room solution. Features include programmable, silent membrane switches, interchangeable cartridges, logic inputs and outputs, and LED indicators – Microflex Boundary microphones provide high-quality sound for a wide range of applications.

- Cardioid, supercardioid and omnidirectional polar patterns
- Select models available in black or white
- Programmable, silent membrane switch
- TTL Logic LED input and TTL Logic switch output (MX392 only)
- LED indicator (MX392, MX393)

Available Models

MX391 C/S/O
Black Attached cable w/ 4-pin mini connector, Preamplifier
MX391W C/S/O
White Attached cable w/ 4-pin mini connector, Preamplifier
MX392 C/S/O
Surface-mount microphone, Attached unterminated cable
MX392BE C/S/O
Surface-mount microphone, Attached bottom exit cable
MX393 C/S/O
Surface-mount microphone, Mini 3-pin connector cable

C = Cardioid, **S** = Supercardioid, **O** = Omnidirectional

MX391 MX392 MX393

MX392BE side MX392BE front

Inconspicuously Impressive.

MX395

Low Profile Boundary Microphone

The Microflex Low Profile Boundary microphone is an ideal table microphone when minimal presence is of high priority. Perfect for meeting rooms, these microphones deliver exceptional sound pickup while barely being noticed. Choose from a selection of colors and pickup patterns for customized table and ceiling installations.

- Only 1.25 inch (3.175 cm) in diameter
- Cardioid, omni and bidirectional polar patterns
- Wide dynamic range and smooth frequency response
- Available in black, white and aluminum
- Bi-color status indicator (select models)
- TTL Logic LED input and TTL Logic switch output

Available Models

MX395B C/O/BI
Black
MX395AL C/O/BI
Aluminum
MX395W O
White
MX395B O/C/BI-LED
Black, with bi-color status indicator

C = Cardioid, **O** = Omnidirectional, **BI** = Bidirectional

Side view

Unmatched Flexibility. Unbending Performance.

MX412/MX418
Standard Gooseneck Microphones

Microflex Standard Gooseneck microphones provide the added length and flexibility needed for speakers in environments like lecterns, pulpits, and courtrooms. Available in four models with a variety of heights and mounting styles to choose from, Microflex Gooseneck microphones feature high sensitivity and balanced, transformerless output for maximum resistance to electromagnetic hum and RF interference, even over long cable runs.

- Available in 12 inch (30.5 cm) and 18 inch (45.7 cm) lengths
- Interchangeable cartridges provide the right polar pattern for every application
- Locking flange mount for permanently securing microphone to surfaces
- Snap-fit foam windscreen
- Shock mount provides over 20 dB isolation from surface vibration noise
- Models available with attached preamp, in-line preamp, or desktop base

MX412S

MX418D

Available Models

MX412 C/S/N
12 inch (30.5 cm), Attached Preamp

MX412S C/S/N
12 inch (30.5 cm), Attached Preamp, Mute Switch

MX412SE C/S/N
12 inch (30.5 cm), In-Line Preamp, 10 foot (3.0 m) Side-Exit Cable

MX412D C/S/N
12 inch (30.5 cm), Desktop Base with 10 foot (3.0 m) Cable

MX418 C/S/N
18 inch (45.7 cm), Attached Preamp

MX418S C/S/N
18 inch (45.7 cm), Attached Preamp, Mute Switch

MX418SE C/S/N
18 inch (45.7 cm), In-Line Preamp, 10 foot (3.0 m) Side-Exit Cable

MX418D C/S/N
18 inch (45.7 cm), Desktop Base with 10 foot (3.0 m) Cable

C = Cardioid, **S** = Supercardioid, **N** = No Cartridge

Microflex Microphones Specifications (Note: All specifications are subject to change.)

	MICRO**FLEX** Lavalier/Headset Microphones	MX**200** Overhead Microphones	MX**391/392/393** Boundary Microphones	MX**395/396** Boundary Microphones	MX**400** Gooseneck Microphones	MX**690** Boundary Microphone
Type	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)	Condenser (electret bias)
Frequency Response	MX185/184/183: 50–17000 Hz MX150: 20–20000 Hz MX153: 20–20000 Hz	50–17000 Hz	50–17000 Hz	50–17000 Hz	50–17000 Hz	50–17000 Hz
Output Impedance	MX185/184/183: EIA rated at 150 Ω (170 Ω actual) MX150: 165.5 Ω MX153: N/A	180 Ω actual (EIA rated at 150 Ω)	EIA Rated at 150 Ω (180 Ω actual)	EIA Rated at 150 Ω (170 Ω actual)	EIA Rated at 150 (170 actual, MX405/410/415) (180 actual, MX412/418)	EIA Rated at 150 Ω (180 Ω actual)
Sensitivity (at 1 kHz, open circuit voltage)	MX183: –27.5 dB V/Pa (42.2 mV) MX184: –33.5 dB V/Pa (21.1 mV) MX185: –35.0 dB V/Pa (17. 8 mV) MX150: –39.0 dB V/Pa MX153: –41.0 dB V/Pa All settings –12 dB at 0 gain 1 Pascal = 94 dB SPL	Cardioid: –35.0 dB V/Pa (17.8 mV) Supercardioid: –33.5 dB V/Pa (21.1 mV) Omnidirectional: –27.5 dB V/Pa (42.2 mV) All values –12 dB at 0 gain 1 Pascal = 94 dB SPL	MX391 Cardioid: –29.6 dB V/Pa (33.5 mV) MX391 Supercardioid: –28.3 dB V/Pa (38.5 mV) MX391 Omnidirectional: –21.5 dB V/Pa (81.4 mV) MX392/393 Cardioid: –27.5 dB V/Pa (42.2 mV) MX392/393 Supercardioid: –26.5 dB V/Pa (47.3 mV) MX392/393 Omnidirectional: –22.0 dB V/Pa (79.4 mV) 1 Pascal = 94 dB SPL	MX395 Cardioid: –34 dB V/Pa (20 mV) MX395 Omnidirectional: –29 dB V/Pa (35.5 mV) MX395 Bidirectional: –35 dB V/Pa (17.8 mV) MX396: –35 dB V/Pa (18 mV) 1 Pascal = 94 dB SPL	Cardioid: –35 dB V/Pa (17.8 mV) Supercardioid: –33.5 dB V/Pa (21.1 mV) Omnidirectional: –27.5 dB V/Pa (42.2 mV) 1 Pascal=94 dB SPL	–33 dB V/Pa (33 mV) 1 Pascal=94 dB SPL
Maximum SPL (1 kHz at 1% THD, 1 k load)	MX183: 132.8 dB MX184: 138.8 dB MX185: 140.3 dB MX150: 129.5 dB MX153: 107 dB All settings +6 dB at 0 gain	Cardioid: 124.2 dB Supercardioid: 122.7 dB Omnidirectional: 116.7 dB	Cardioid: 118.8 dB Supercardioid: 117.5 dB Omnidirectional: 110.7 dB	MX395 Cardioid: 120 dB MX395 Omnidirectional: 115 dB MX395 Bidirectional: 121 dB MX396: 122 dB	MX405/410/415: Cardioid with MX400SMP: 121.1 dB Cardioid with MX400DP: 122 dB Supercardioid: with MX400SMP: 119.7 dB Supercardioid: with MX400DP: 120.5 dB MX412/418: Cardioid: 124.2 dB Supercardioid: 122.7 dB Omnidirectional: 116.7 dB	118.8 dB *For complete specifications on the MX690 and MX890 wireless transmitters, please visit www.shure.com.*
Equivalent Output Noise (A-weighted)	MX183: 23.7 dB SPL MX184: 29.7 dB SPL MX185: 31.2 dB SPL MX150: 31.0 dB SPL MX153: 24.9 dB SPL	Cardioid: 28.0 dB SPL Supercardioid: 26.5 dB SPL Omnidirectional: 20.5 dB SPL	Cardioid: 22.6 dB SPL Supercardioid: 21.3 dB SPL Omnidirectional: 14.5 dB SPL	MX395 Cardioid: 29 dB SPL MX395 Omnidirectional: 23 dB SPL MX395 Bidirectional: 27 dB SPL MX396: 30 dB SPL	Cardioid: 28 dB SPL Supercardioid: 26.5 dB SP L Omnidirectional: 20.5 dB SPL	22.6 dB SPL
Signal-to-Noise Ratio (referenced at 94 dB SPL at 1 kHz)	MX183: 70.3 dB MX184: 64.3 dB MX185: 62.8 dB MX150: 57.5 dB MX153: 60.0 dB	Cardioid: 66.0 dB Supercardioid: 67.5 dB Omnidirectional: 73.5 dB	Cardioid: 71.4 dB Supercardioid: 72.7 dB Omnidirectional: 79.5 dB	MX395 Cardioid: 65 dB MX395 Omnidirectional: 72 dB MX395 Bidirectional: 67 dB MX396: 64 dB	Cardioid: 66 dB Supercardioid: 67.5 dB Omnidirectional: 73.5 dB	71.4 dB
Dynamic Range (1 k load at 1 kHz)	MX185/184/183: 109.1 dB MX150: 92.5 dB MX153: 73.0 dB 100 dB at 0 gain	96.2 dB (100 dB at 0 gain)	96.2 dB	MX395 Cardioid: 91 dB MX395 Omnidirectional: 92 dB MX395 Bidirectional: 95 dB MX396: 92 dB	MX405/410/415: Cardioid with MX400SMP: 93.1 dB Cardioid with MX400DP: 94 dB Supercardioid with MX400SMP: 93.2 dB Supercardioid with MX400DP: 94 dB MX412/418: 96.2 dB 100 dB at 0 gain	96.2 dB
Power Requirements	11–52 Vdc phantom, 2.0 mA or 9V battery 0.8mA	11–52 Vdc phantom, 2.0 mA	11–52 Vdc phantom, 2.0 mA	MX395: 11–52 Vdc phantom, 2.0 mA MX395-LED: 48–52 Vdc phantom, 8.0 mA MX396: MX396/C-DUAL: 48–52 Vdc phantom, 10.0 mA MX396/C-TRI: 48–52 Vdc phantom, 12.0 mA	MX405/410/415: 48–52 Vdc phantom, 8.0 mA MX412/418: 11–52 Vdc phantom, 8.0 mA	3V (2 AA alkaline or rechargeable batteries)

SHURE®

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Pro Series Control Systems

Making Complex Systems Simpler and Simple Systems More Powerful

- TouchLink® Pro touchpanels with faster processing and more memory
- IP Link® Pro control processors with advanced security features and more processing power
- eBUS button panels are the easiest way to deploy and expand AV system control
- Powerful configuration software with advanced features
- Extron LinkLicense® for easy upgrades to Extron Control Systems

Extron Electronics
INTERFACING, SWITCHING AND CONTROL

Pro Series Control Products

For nearly two decades, Extron has been the industry leader in configurable control systems and has designed and manufactured products with the power and reliability to handle the needs of professional AV applications. Extron Pro Series Control Systems take configurable control to a whole new level with advanced configuration software, exciting new touchpanels, more powerful processors, and a broad range of other tools and breakthrough technologies geared to handle the evolving complexities of today's AV system designs. There are over 70 Pro Series control products; all designed to make complex systems simpler and simple systems more powerful, and all backed by the Extron Quality Guarantee and S3 customer support you trust.

TouchLink Pro Touchpanels

TouchLink® Pro models offer faster processing and more memory. Seven of these are in 5", 12", 15", and 17" sizes with vibrant, capacitive touchscreens. The three largest sizes offer high resolution video preview and a new design with edge-to-edge glass.

eBUS Button Panels

Extron's eBUS® button panels are customizable, integration-friendly AV system control interfaces designed for use with Extron IPCP Pro control processors. eBUS button panels come in industry-standard form factors and multiple units may be linked together by a single cable that carries both power and communication.

IP Link Pro Series Control Processors

Our IP Link® Pro control processors are faster, more secure, and more powerful than ever. Built-in Gigabit Ethernet and new network protocols allow fast and secure connections. When combined with Global Configurator® Plus and Global Configurator Professional configuration software, these control processors are capable of enhanced functions as well as advanced scheduling and monitoring.

The Industry's Most Powerful Configuration Software

The latest version of our Global Configurator® software provides the most powerful and versatile AV control system configuration tools we have ever offered to AV system integrators. It is ideal for a wide variety of control systems and applications, and helps streamline integration within today's demanding AV control environments. In this latest version, advanced features, such as conditional logic, variables, and macros provide even greater flexibility for more elaborate control system designs.

Unlock Powerful New Features with LinkLicense

Extron LinkLicense® is a quick, cost-effective way for people to add even more powerful capabilities to Extron products. LinkLicense is applied per-system, not per-user, and there are no hidden costs. There are currently two LinkLicense upgrades for control systems – LinkLicense for User interfaces and LinkLicense for Software Conferencing.

TouchLink Pro Touchpanels

TLP Pro 1220TG

Light sensor
Automatically adjusts LCD backlighting

Configurable light bar
Indicates a room's availability or call status

Headphone Jack
3.5 mm headphone jack

High resolution video preview inputs
XTP and HDMI video inputs

LED indicator
LED indicator provides control processor connection status

Fully customizable
Fully customizable touchpanel user interface

USB ports
For device expansion

Brighter, more responsive display
12" capacitive, edge-to-edge glass LCD display

On-screen menus
Simplify touchpanel set-up

Mounting options
VESA mounting supported

Built-in speakers
Provide stereo audio

Kensington lock support
Allows the touchpanel to be locked to a table or other flat surface

Power saving
Motion sensor for sleep and run modes

Easy viewing angles
Base supports up to 40 degrees of tilt

PoE
Power over Ethernet for power and communication over a single cable

TLP Pro 1220TG

12" Tabletop TouchLink Pro Touchpanel

The Extron TLP Pro 1220TG is a 12" tabletop touchpanel with a capacitive, edge-to-edge glass touchscreen. As with all TouchLink® Pro models, this new, customizable touchpanel features faster processing and more memory. The 1280x800 capacitive touchscreen provides a vibrant image, more responsive control surface, and increased vertical viewing angle. The TLP Pro 1220TG features video preview inputs that support high resolution HDCP-compliant video from HDMI sources and Extron XTP devices. The touchpanel conveniently receives power and communication over a single Ethernet cable. The TLP Pro 1220TG has a clean, high-tech design and features that make it ideal for control applications that require a fully-customizable tabletop touchpanel with a large control surface and multi-source video preview.

TLP Pro 1220TG Key Features

- 12" capacitive touchscreen with 1280x800 resolution and 16 million colors
- Faster processing and more memory
- Full motion video preview with HDMI and XTP inputs
- Compatible with all IP Link® Pro control processors
- Touchpanel receives power and communication over a single Ethernet cable, eliminating the need for a local power supply - Power injector sold separately
- Built-in speakers provide stereo audio
- Light sensor adjusts screen brightness as the ambient room lighting changes
- Configurable red and green status lights indicate a room's availability or call status

Extron TouchLink Pro touchpanels are available in a variety of sizes and form factors suitable for a wide range of applications. A series of pre-configured design themes help streamline TouchLink user interface development, and allow integrators to easily develop intuitive graphical user interfaces with a sophisticated, high tech appearance. Extron has several new TouchLink Pro models with faster processing and more memory. Seven of these are in new 5", 12", 15", and 17" sizes with vibrant, capacitive touchscreens.

TLP Pro 1720TG

17" Tabletop TouchLink Pro Touchpanel

- 17" capacitive touchscreen with 1920x1080 resolution and 16 million colors
- Full-motion video preview and monitoring with HDMI and XTP inputs
- Compatible with all IP Link Pro control processors
- Sits on a tabletop or installs on a VESA mount
- PoE+ delivers power and communication over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
TLP Pro 1720TG	Black - Tabletop & VESA	60-1345-02

TLP Pro 1720MG

17" Wall Mount TouchLink Pro Touchpanel

- 17" capacitive touchscreen with 1920x1080 resolution and 16 million colors
- Full-motion video preview and monitoring with HDMI and XTP inputs
- Compatible with all IP Link Pro control processors
- Mounts on a wall, lectern, or any flat surface
- PoE+ delivers power and communication over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
TLP Pro 1720MG	Black - Wall Mount	60-1344-02

TLP Pro 1520TG

15" Tabletop TouchLink Pro Touchpanel

- 15" capacitive touchscreen with 1366x768 resolution and 16 million colors
- Faster processing and more memory
- High resolution video preview with HDMI and XTP inputs
- Compatible with all IP Link® Pro control processors
- Touchpanel receives power and communication over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
TLP Pro 1520TG	Black - Tabletop & VESA	60-1343-02

TLP Pro 1520MG

15" Wall Mount TouchLink Pro Touchpanel

- 15" capacitive touchscreen with 1366x768 resolution and 16 million colors
- Faster processing and more memory
- High resolution video preview with HDMI and XTP inputs
- Compatible with all IP Link® Pro control processors
- Touchpanel receives power and communication over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
TLP Pro 1520MG	Black - Wall Mount	60-1342-02

TouchLink Pro Touchpanels

TLP Pro 1220TG

12" Tabletop TouchLink Pro Touchpanel

- 12" capacitive touchscreen with 1280x800 resolution and 16 million colors
- Faster processing and more memory
- High resolution video preview with HDMI and XTP inputs
- Compatible with all IP Link® Pro control processors
- Touchpanel receives power and communication over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
TLP Pro 1220TG	Black - Tabletop & VESA	60-1341-02

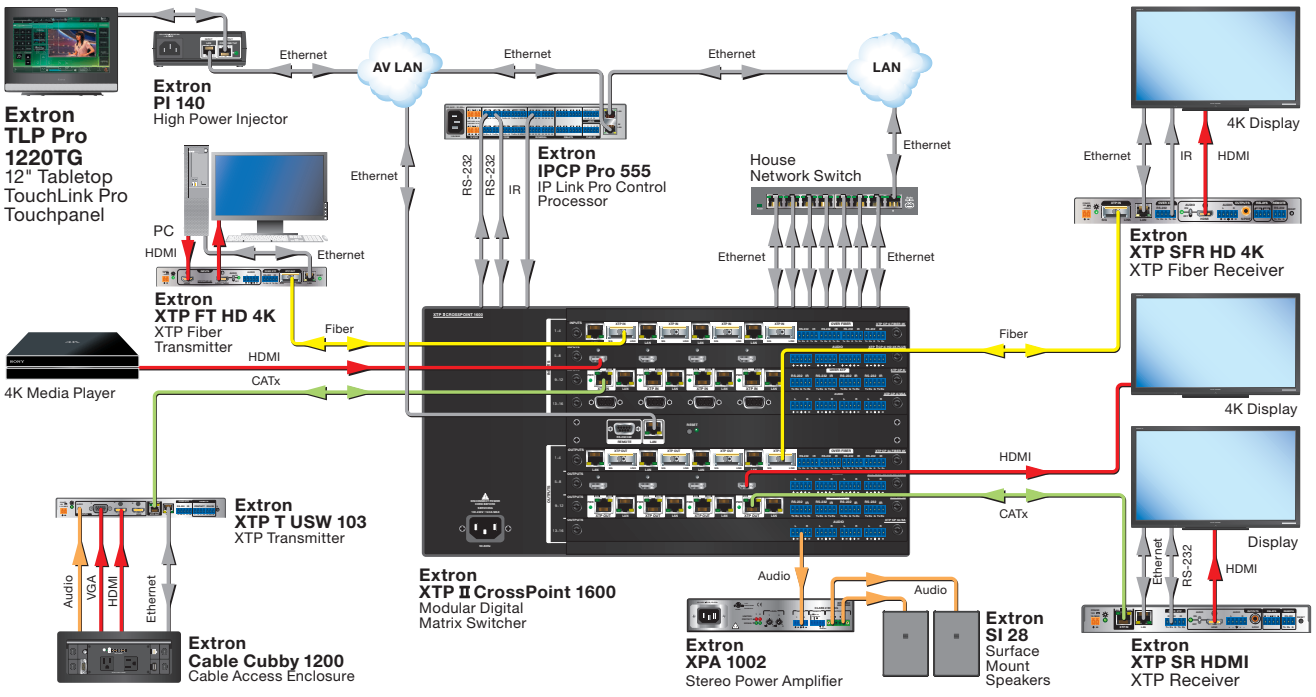
TLP Pro 1220MG

12" Wall Mount TouchLink Pro Touchpanel

- 12" capacitive touchscreen with 1280x800 resolution and 16 million colors
- Faster processing and more memory
- High resolution video preview with HDMI and XTP inputs
- Compatible with all IP Link® Pro control processors
- Touchpanel receives power and communication over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
TLP Pro 1220MG	Black - Wall Mount	60-1340-02

APPLICATION DIAGRAM



TLP Pro 1022T

10" Tabletop TouchLink Pro Touchpanel

- 10" capacitive touchscreen with 1024x600 resolution and 18-bit color depth
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply
- Built-in speakers with improved audio performance
- Light sensor adjusts screen brightness as the ambient room lighting changes
- Configurable red and green status lights
- System connection status indicator
- Sits on a tabletop or installs on a VESA mount

Model	Version Description	Part Number
TLP Pro 1022T	Black - Tabletop & VESA	60-1601-02

TLP Pro 1022M

10" Wall Mount TouchLink Pro Touchpanel

- 10" capacitive touchscreen with 1024x600 resolution and 18-bit color depth
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply
- Built-in speakers with improved audio performance
- Light sensor adjusts screen brightness as the ambient room lighting changes
- Configurable red and green status lights
- System connection status indicator
- Mounts on a wall, lectern, or any flat surface

Model	Version Description	Part Number
TLP Pro 1022M	Black - Wall Mount	60-1602-02

TLP Pro 720T

7" Tabletop TouchLink Pro Touchpanel

- 7" LCD touchscreen with 800x480 resolution and 18-bit color depth
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply
- Built-in speaker with improved audio performance
- Light sensor adjusts screen brightness as the ambient room lighting changes
- Configurable red and green status lights indicate a room's availability or call status
- Automatic clock synchronization for accurate time and date display

Model	Version Description	Part Number
TLP Pro 720T	Black - Tabletop & VESA	60-1395-02

TLP Pro 720M

7" Wall Mount TouchLink Pro Touchpanel

- 7" LCD touchscreen with 800x480 resolution and 18-bit color depth
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply
- Built-in speaker with improved audio performance
- Light sensor adjusts screen brightness as the ambient room lighting changes
- Configurable red and green status lights indicate a room's availability or call status
- Automatic clock synchronization for accurate time and date display

Model	Version Description	Part Number
TLP Pro 720M	Black - Wall Mount	60-1394-02
TLP Pro 720M	White - Wall Mount	60-1394-03

TouchLink Pro Touchpanels

TLP Pro 720C

7" Cable Cubby TouchLink Pro Touchpanel

- 7" flip-up LCD touchscreen with 800x480 resolution and 18-bit color depth
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply
- Built-in speaker with improved audio performance
- Light sensor adjusts screen brightness
- Cable Cubby design offers easy access to AV, data, and power connections
- AC power modules available for US, Europe, and other major world markets

Model	Version Description	Part Number
TLP Pro 720C	Black - w/o AC Module	60-1396-0200
TLP Pro 720C	Black - w/US AC Module	60-1396-020A
TLP Pro 720C	Brushed Alum - w/o AC Module	60-1396-0210

TLP Pro 520M

5" Wall Mount TouchLink Pro Touchpanel

- 5" capacitive touchscreen with 800x480 resolution and 16 million colors
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply
- Built-in speaker with improved audio performance
- Light sensor adjusts screen brightness
- Configurable red and green status lights indicate a room's availability or call status
- System connection status indicator provides visual feedback if the touchpanel is not communicating with a control processor

Model	Version Description	Part Number
TLP Pro 520M	Black - Wall Mount	60-1185-02

TLP Pro 320C

3.5" Cable Cubby TouchLink Pro Touchpanel

- 3.5" flip-up LCD touchscreen with 320x240 resolution and 18-bit color depth
- Ten customizable backlit buttons
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable
- Built-in speaker with improved audio performance
- Light sensor adjusts screen brightness
- Cable Cubby design offers easy access to AV, data, and power connections
- AC power modules available for US, Europe, and other major world markets

Model	Version Description	Part Number
TLP Pro 320C	Black - w/o AC Module	60-1452-0200
TLP Pro 320C	Black - w/US AC Module	60-1452-020A
TLP Pro 320C	Brushed Alum - w/o AC Module	60-1452-0210

TLP Pro 320M

3.5" Wall Mount TouchLink Pro Touchpanel

- 3.5" LCD touchscreen with 320x240 resolution and 18-bit color depth
- Eight customizable backlit buttons and a user-friendly volume knob
- Compatible with all IP Link® Pro control processors
- Power over Ethernet allows the touchpanel to receive power and communication over a single Ethernet cable
- Built-in speaker with improved audio performance
- Light sensor adjusts screen brightness
- Configurable red and green status lights indicate a room's availability or call status
- System connection status indicator provides visual feedback

Model	Version Description	Part Number
TLP Pro 320M	Black - Wall Mount	60-1451-02
TLP Pro 320M	White - Wall Mount	60-1451-03

TouchLink Pro Conference Control Interface

CCI Pro 700

Customizable 3.5" color information display
Easily readable screen can be configured to provide a broad range of information to the user

Dual color LED status indicator
Provides visual feedback for a broad range of applications

Codec Connect™
Codec Connect is a small application that facilitates direct communication between Extron Pro Series Control Systems and Lync 2013 or Skype for Business.

Ambient Light Sensor
Light sensor adjusts screen brightness and button backlight as the ambient room lighting changes

Volume button
Provides a means to control system volume

Context buttons
Quickly select system functions

Mode buttons
control of common conferencing and collaboration functions

Dial buttons
On-hook and off-hook controls

Microphone mute button
Provides a means to mute a microphone in the system

Navigation buttons
Easily navigate through on screen menus or functions

Power over Ethernet
Power and control over a single Ethernet cable

Six backlit, soft-touch function buttons
Customize the button functions and labeling configuration for each conferencing and control application using the Extron Custom Button Builder.

Power saving motion sensor
Controls sleep and run modes

Numeric keypad
Standard 12 button

Convenient information tray for easy access to reminders or system information

CCI Pro 700

TouchLink Pro Conference Room Control Interface

The Extron CCI Pro 700 is the industry's first control system user interface optimized for conferencing, collaboration, and AV control. It supports many of the critical functions needed in a conferencing environment, while providing a powerful and intuitive user interface for room control. The compact CCI Pro 700 includes a 3.5" color information display, a numeric keypad, and backlit buttons. The information display may be used to show contact information, call directories, and call status. Buttons directly below the display may be used to navigate custom lists and menus. The information display is customized using GUI Designer, and all buttons can be configured and customized using Global Configurator Plus and Pro, and Custom Button Builder.

CCI Pro 700 Key Features

- Control conference systems and AV devices from a single, easy-to-use interface
- Familiar and intuitive design provides a convenient and comfortable user experience
- Works seamlessly with virtually any audio and video conferencing solution
- Supports Microsoft® Skype® for Business when used in conjunction with Extron Codec Connect™
- Compatible with all IP Link Pro control processors
- Customizable 3.5" color information display with context-dependent buttons
- Six backlit soft-touch function buttons for AV device control or call presets
- Configurable, backlit buttons for critical conference functions
- Power over Ethernet allows the interface to receive power and communication over a single Ethernet cable

eBUS Button Panels

Activity LED
Activity LED indicates that a button has been pressed

Mounting options
Includes black and white Decora-style wallplates and mud ring

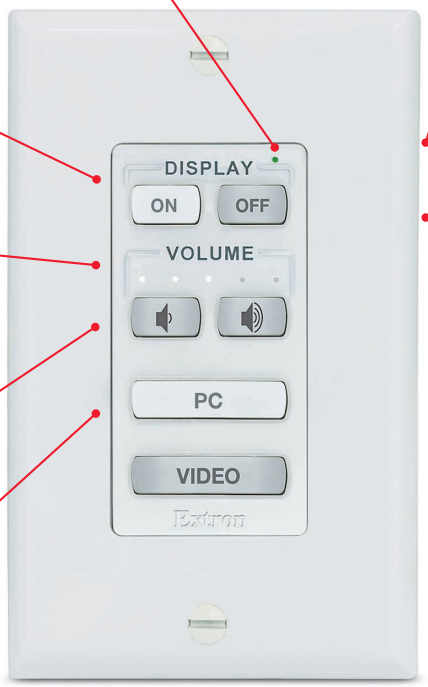
DIP switches
DIP switches are used to set unique eBUS device addresses

Discrete On and Off Buttons
Control display power and simplify system operations

Volume control
Volume adjustment buttons with LEDs for visual feedback

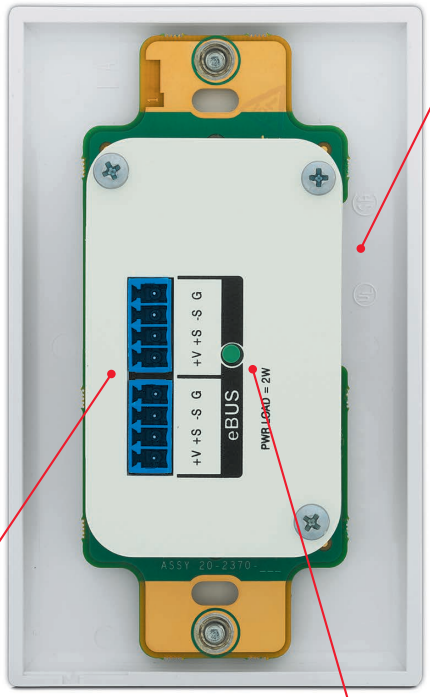
Soft-touch buttons
Soft-touch buttons for a contemporary look and feel

Backlit buttons
Backlit buttons provide ease of use in low-light environments



EBP 106 D

Audible feedback
Built-in speaker provides audible feedback for button presses and connection status



eBUS ports
Two eBUS ports for connecting to an IPCP Pro control processor or linking to other eBUS devices

Diagnostic LED
eBUS diagnostic LED provides connection status for troubleshooting

eBUS Button Panels

Extron's eBUS button panels are customizable, integration-friendly AV system control interfaces designed for use with Extron IPCP Pro control processors. eBUS button panels come in industry-standard form factors and multiple units may be linked together by a single cable that carries both power and communication. Buttons can be easily customized using Extron Button Label Generator software or by using the online Custom Button Builder application.

eBUS Technology

Extron's integration-friendly eBUS technology is based on a unique digital bus architecture that allows for easy control system expansion, greater design options, and future upgrades. As with our TouchLink Pro touchpanels, eBUS button panels are designed for use with any Extron IPCP Pro Series control processor. A single eBUS button panel can be used as the AV control interface for a smaller system or multiple button panels and touchpanels may be combined when a more elaborate control system is required. Powered and non-powered eBUS distribution hubs are available to accommodate a variety of system design topologies.

Features

- **Fully customizable button panels integrate easily with an Extron Pro Series control system**
- **Single-cable connection enables easy system expansion and greater design options**
- **Use a single button panel or multiple button panels, depending on your application needs**
- **Compatible with all IPCP Pro control processors**
- **Backlit buttons provide easy operation in low-light environments**
- **Available in a variety of mounting options, including US gang size, Decora, EU, and MK**

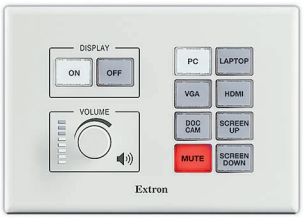
EBP 100 and EBP 200

eBUS Button Panels - 2 and 3 Gang

- Fully customizable button panels integrate easily with an Extron Pro Series control system
- Dual-color, customizable, back-lit buttons
- Two eBUS® ports allow for quick system expansion and upgrades
- Compatible with all Extron IPCP Pro control processors
- Use a single button panel or combine multiple button panels to accommodate a broad variety of system designs
- eBUS button panels connect to the control processor and each other using a single cable that carries both power and communication
- Volume control knobs with LEDs for visual feedback

Model	Version Description	Part Number
EBP 100	2-Gang, Black and White, 6 Button	60-1388-01
EBP 200	3-Gang, Black and White, 10 Button	60-1389-01

EBP 100



EBP 200

EBP 105 D and EBP 106 D

eBUS Button Panels - Decora Wallplates

- Fully customizable button panels integrate easily with an Extron Pro Series control system
- Backlit, soft-touch buttons that can be customized using Extron's Custom Button Builder
- Two eBUS® ports allow for quick system expansion and upgrades
- Compatible with all Extron IPCP Pro control processors
- Use a single button panel or combine multiple button panels to accommodate a broad variety of system designs
- eBUS button panels connect to the control processor and each other using a single cable that carries both power and communication

Model	Version Description	Part Number
EBP 105 D	Decora, Black and White, 5 Button	60-1085-01
EBP 106 D	Decora, Black and White, 6 Button	60-1084-01

EBP 105D

EBP 106D

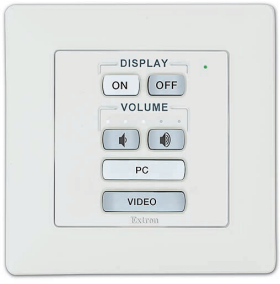
EBP 105 EU and EBP 106 EU
EBP 105 MK and EBP 106 MK

eBUS Button Panels for EU and MK Junction Boxes

- Customizable button panel integrates easily with an Extron Pro Series control system
- Backlit, soft-touch buttons that can be customized using Extron's Custom Button Builder
- Two eBUS® ports allow for quick system expansion and upgrades
- Compatible with all Extron IPCP Pro control processors
- Use a single button panel or combine multiple button panels to accommodate a broad variety of system designs

Model	Version Description	Part Number
EBP 105 EU	EU Mount, Black and White, 5 Button	60-1085-31
EBP 106 EU	EU Mount, Black and White, 6 Button	60-1084-31
EBP 105 MK	MK Mount, White, 5 Button	60-1085-23
EBP 106 MK	MK Mount, White, 6 Button	60-1084-23

EBP 105 EU



EBP 106 MK

TouchLink Pro

TLI Pro 101

TouchLink Interface

The Extron TLI Pro 101 is a TouchLink Interface that allows a third party touchscreen display to be used as a point of control within an Extron Pro Series control system. This unique interface includes a scaled HDCP-compliant HDMI input for video preview. The scaled output supports displays from 800x600 to 1920x1200, as well as HDTV 1080p/60 and 2K. The TLI Pro 101 works with any Extron IP Link® Pro control processor, enabling third party touchscreen devices to be used for complete, interactive control of a broad range of source devices.

Features

- Compatible with third party touchscreen displays up to 1920x1200, including HDTV 1080p/60 and 2K
- Fast processing and ample memory – Allows for quicker configuration uploads and more storage for GUI pages.
- Compatible with all IP Link Pro control processors
- Power over Ethernet allows the interface to receive power and communication over a single Ethernet cable, eliminating the need for a local power supply - PoE injector sold separately
- Supports HDCP-compliant HDMI for full-motion video preview and monitoring
- Advanced Extron video signal processing with a high performance scaling engine
- One high speed USB 2.0 port for third-party touchscreens or HID support

Model	Version Description	Part Number
TLI Pro 101	TouchLink Interface	60-1083-01

TLC Pro 521M

5" Wall Mount TouchLink Pro Controller

The Extron TLC Pro 521M is a convenient, all-in-one 5" wall mount touchpanel with a built-in control processor. This easy to use, fully-configurable TouchLink controller combines a vibrant touchscreen with powerful AV system control and enhanced security. The TLC Pro 521M has the same highly-responsive, capacitive touchscreen as the TLP Pro 520M TouchLink® Pro Touchpanel, and adds a secure, powerful control processor, producing a feature-packed touchpanel controller in a compact form factor. For ease of integration, Power over Ethernet - PoE allows the controller to receive power and communication over a single Ethernet cable.

TLC Pro 521M - Front

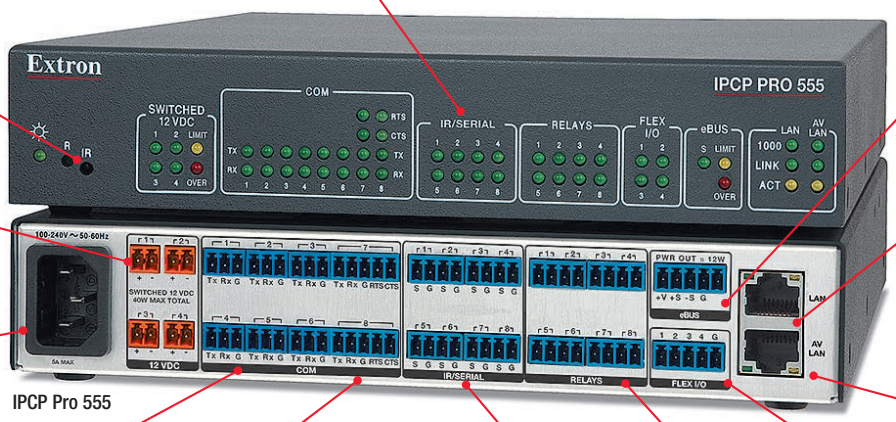
TLC Pro 521M - Back

Features

- 5" capacitive touchscreen with 800x480 resolution and 16 million colors
- Built-in control processor
  - One bidirectional RS-232 port
  - Two relays for controlling room functions
  - One IR/Serial port for one-way control of external devices
  - One digital input
- Power over Ethernet allows the controller to receive power and communication over a single Ethernet cable
- Supports Ethernet-controllable devices
- Removable captive screw connectors

Model	Version Description	Part Number
TLC Pro 521M	Wall Mount Controller	60-1284-02

IP Link Pro Control Processors



IPCP Pro 555

LED indicators
Assist in monitoring and troubleshooting of control ports

IR receiver
For creating customized IR drivers

DC power ports
Four switched DC power ports for powering remote devices

Internal power supply
With worldwide compatibility

eBUS port
For connecting eBUS-enabled devices

Dual Gigabit Ethernet port
For network control and management

AV LAN Port
Allows AV devices to be isolated from the corporate network, and is secure from outside interference or intrusion

Serial ports
Six bidirectional RS-232 serial ports

Serial ports
Two bidirectional RS-232/RS-422/RS-485 serial ports

Eight IR/Serial ports
Eight IR/Serial ports for control of source devices

Eight relays
For controlling room functions

Four flex I/O ports
Allow for system automation and feedback

IPCP Pro 555

IP Link Pro Control Processor

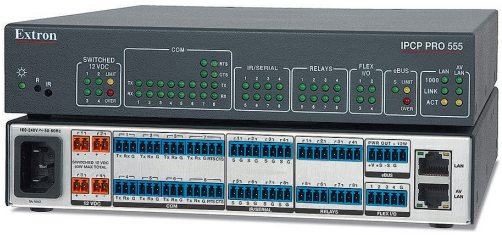
The Extron IPCP Pro 555 is a versatile, high-performance control processor with a secure, dedicated AV LAN port. It features advanced security standards and dual Gigabit Ethernet ports, which ensure compatibility with multiple TouchLink Pro touchpanels using a standard network infrastructure. Of the two Ethernet ports, the AV LAN is designed to control local AV devices, and safeguard them from outside intrusion or interference. The IPCP Pro 555 can be used with Extron LinkLicense®, which further enhances the capabilities of Extron Pro Series control systems. The IPCP Pro 555 is an ideal choice for controlling multiple devices and control signal types within AV systems requiring an isolated AV network.

IPCP Pro 555 Key Features

- Supports TouchLink Pro touchpanels and eBUS® button panels
- AV LAN port allows AV devices to be isolated from the corporate network
- Supports secure industry standard communications protocols
- Supports LinkLicense for User Interfaces
- Six bidirectional RS-232 serial ports with software handshaking
- Two bidirectional RS-232/RS-422/RS-485 serial ports with hardware and software handshaking
- Eight IR/Serial ports for one-way control of external devices
- Four Flex I/O ports
- Eight relays for controlling room functions
- eBUS port for connecting eBUS button panels and accessories
- Four independently switched 12 VDC outputs

IP Link Pro Control Processors

IP Link® Pro control processors work together with TouchLink® Pro touchpanels and other Pro Series products for AV system and room control. With the help of thousands of Extron Certified device drivers, they allow almost any AV device to be controlled, monitored, and accessed from a Local Area Network, Wide Area Network, or the Internet.

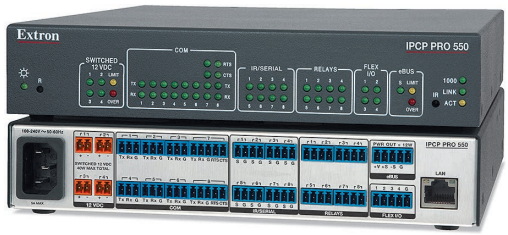


IPCP Pro 555

IP Link Pro Control Processor

- Supports TouchLink® Pro touchpanels and eBUS® button panels
- AV LAN port allows AV devices to be isolated from the corporate network
- Supports secure industry standard communications protocols
- Supports LinkLicense®
- Six bidirectional RS-232 serial ports with software handshaking
- Two bidirectional RS-232/RS-422/RS-485 serial ports with hardware and software handshaking

Model	Version Description	Part Number
IPCP Pro 555	IP Link Pro Control Processor	60-1434-01
IPCP Pro 555	IP Link Pro Control Proc., LL UI Upgrade	60-1434-01A



IPCP Pro 550

IP Link Pro Control Processor

- Supports TouchLink® Pro touchpanels and eBUS® button panels
- Supports secure industry standard communications protocols
- Supports LinkLicense®
- Six bidirectional RS-232 serial ports with software handshaking
- Two bidirectional RS-232/RS-422/RS-485 serial ports with hardware and software handshaking

Model	Version Description	Part Number
IPCP Pro 550	IP Link Pro Control Processor	60-1418-01
IPCP Pro 550	IP Link Pro Control Proc., LL UI Upgrade	60-1418-01A

IPCP Pro 350

IP Link Pro Control Processor

- Supports TouchLink® Pro touchpanels and eBUS® button panels
- Supports secure industry standard communications protocols
- Supports LinkLicense®
- Two bidirectional RS-232 serial ports with software handshaking
- One bidirectional RS-232/RS-422/RS-485 serial port with hardware and software handshaking

Model	Version Description	Part Number
IPCP Pro 350	IP Link Pro Control Processor	60-1417-01
IPCP Pro 350	IP Link Pro Control Proc., LL UI Upgrade	60-1417-01A

IPCP Pro 250

IP Link Pro Control Processor

- Supports TouchLink® Pro touchpanels and eBUS® button panels
- Supports secure industry standard communications protocols
- Supports LinkLicense®
- One bidirectional RS-232 serial port with software handshaking
- One IR/Serial port for one-way control of external devices

Model	Version Description	Part Number
IPCP Pro 250	IP Link Pro Control Processor	60-1429-01
IPCP Pro 250	IP Link Pro Control Proc., LL UI Upgrade	60-1429-01A

IPL Pro S1

IP Link Pro Control Processor

- Supports TouchLink Pro touchpanels
- Supports secure industry standard communication protocols
- One bidirectional RS-232 serial port with hardware and software handshaking
- Power over Ethernet allows the control processors to receive power and control over a single Ethernet cable, eliminating the need for a local power supply
- Supports 10/100/1000Base-T
- Supports BMS protocols, such as BACnet, KNX, and DALI

Model	Version Description	Part Number
IPL Pro S1	One Serial Port	60-1412-01

IPL Pro S3

IP Link Pro Control Processor

- Supports TouchLink® Pro touchpanels
- Supports secure industry standard communications protocols
- Two bidirectional RS-232 serial ports with hardware and software handshaking
- One bidirectional RS-232/RS-422/RS-485 serial port with hardware and software handshaking
- Supports popular BMS – Building Management System protocols, such as BACnet, KNX, and DALI
- Manage, monitor, and control AV devices using a standard Ethernet network

Model	Version Description	Part Number
IPL Pro S3	Three Serial Ports	60-1413-01

IPL Pro S6

IP Link Pro Control Processor

- Supports TouchLink® Pro touchpanels
- Supports secure industry standard communication protocols
- Five bidirectional RS-232 serial ports with hardware and software handshaking
- One bidirectional RS-232/RS-422/RS-485 serial port with hardware and software handshaking
- Supports popular BMS – Building Management System protocols, such as BACnet, KNX, and DALI
- Manage, monitor, and control AV devices using a standard Ethernet network

Model	Version Description	Part Number
IPL Pro S6	Six Serial Ports	60-1414-01

IP Link Pro Control Processors

IPL Pro CR88

IP Link Pro Control Processor

- Supports TouchLink Pro touchpanels
- Supports secure industry standard communication protocols
- Eight relays for controlling room functions
- Eight contact closure ports
- Manage, monitor, and control AV devices using a standard Ethernet network
- Power over Ethernet allows the control processor to receive power and control over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
IPL Pro CR88	Eight Contact and Eight Relays	60-1416-01

IPL Pro IRS8

IP Link Pro Control Processor

- Supports TouchLink Pro touchpanels
- Supports secure industry standard communication protocols
- Eight IR/Serial ports for one-way control of external devices
- Manage, monitor, and control AV devices using a standard Ethernet network
- Power over Ethernet allows the control processor to receive power and control over a single Ethernet cable, eliminating the need for a local power supply

Model	Version Description	Part Number
IPL Pro IRS8	Eight IR/Serial Ports	60-1415-01

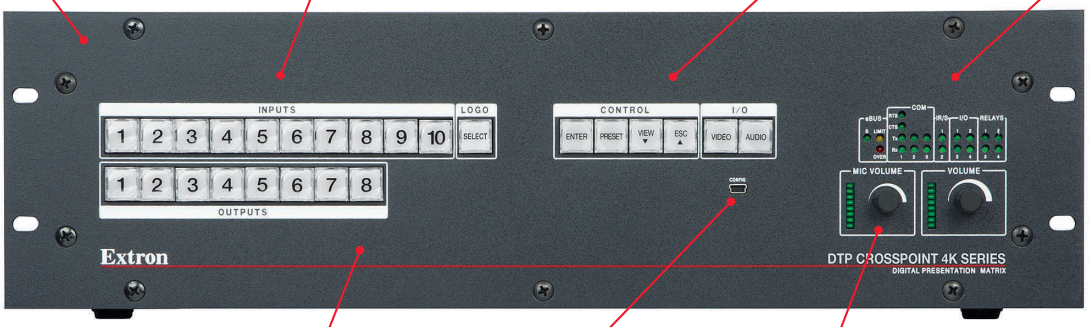
Switchers with Control Processors

Tri-color, backlit buttons
The QS-FPC - QuickSwitch Front Panel Controller allows for simple, intuitive matrix switcher operation.

Extron Vector 4K scaling engine
The exclusive 4K scaling engine is specifically designed for critical-quality 4K imagery, with best-in-class image upscaling and downscaling. Scaling and video format conversion are performed at 30-bit precision for signals up to 4K to provide enhanced color accuracy and picture detail.

Flexible video and audio routing options
AV signals can be routed together or independently, including embedded HDMI stereo audio signals.

Complete AV system integration in one box
The DTP CrossPoint 4K IPCP is an all-in-one matrix switcher, scaler, audio DSP with AEC, audio amplifier, and control processor.



DTP CrossPoint 108 4K IPCP SA - Front

HDCP compliant
The DTP CrossPoint 4K is fully HDCP compliant at all inputs and outputs.

USB configuration port
Provides convenient user access for configuring, controlling, and monitoring the matrix switcher

Volume controls
Allow for adjustment of master volume and microphone level, with accompanying LEDs to indicate volume level

Built-in control processor
The DTP CrossPoint 4K IPCP includes high-speed processing and abundant control port capacity for complete, customizable control of an entire AV system, including sources, displays, and room functions.

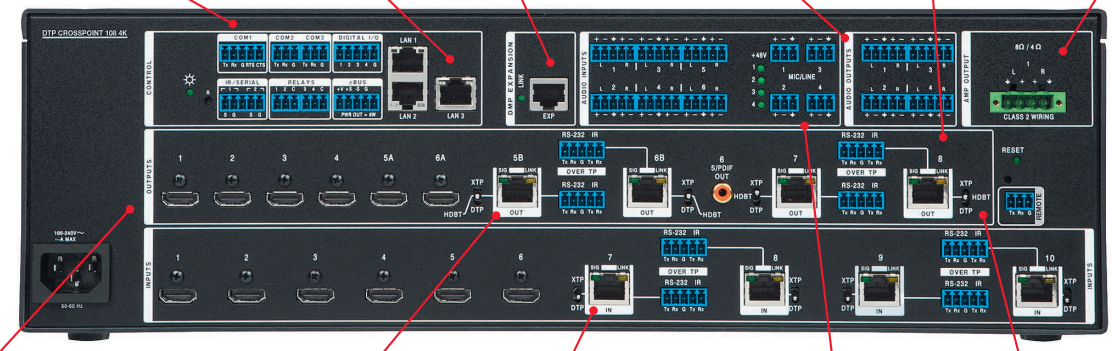
Built-in Gigabit Ethernet switch
Allows convenient connection of a TouchLink Pro touchpanel or other network controlled devices

DMP digital audio expansion port
Allows the matrix switcher and an Extron DMP 128 DSP to be linked together via a shielded CAT 6 cable for system expansion

Mic/line inputs with 48 volt phantom power and ducking
Four mic/line inputs are available for mixing microphones or line level sources into the audio outputs.

Scaled DTP outputs
The DTP CrossPoint 4K provides individual scaling up to 2560x1600 and 4K for each DTP output.

Integrated XTRA Series audio amplifier technologies
DTP CrossPoint 4K IPCP models are available with an integrated stereo or mono amplifier.



DTP CrossPoint 108 4K IPCP SA - Back

HDMI inputs and HDMI outputs
Enable easy integration with HDMI sources and displays

Two DTP outputs with mirrored HDMI connections
Two DTP outputs on the DTP CrossPoint 4K feature mirrored HDMI connections to support local monitoring.

DTP inputs and DTP outputs
The DTP inputs and outputs are compatible with DTP Systems, including DTP 230 and DTP 330 products, or XTP CrossPoint matrix switchers. They support digital signal transmission up to 330 feet (100 meters) over a single shielded CATx cable.

Extron ProDSP
Provides full control of audio input and output levels, plus a wide array of audio processing tools and matrix mixing options for program and microphone signals

Compatible with HDBaseT-enabled displays
The DTP outputs can be configured to send video and embedded audio, plus bidirectional RS-232 and IR signals to projectors and flat-panel displays equipped with HDBaseT inputs.

Switchers – Embedded Control Processors

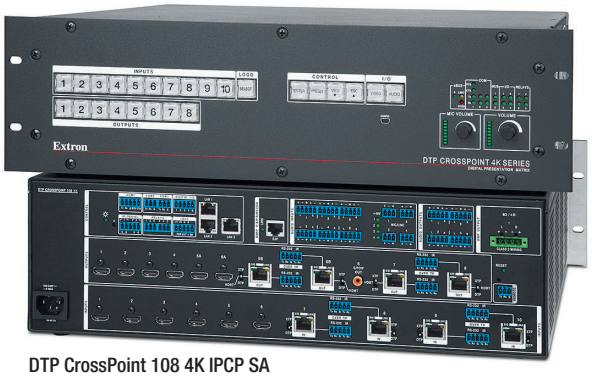
DTP CrossPoint 4K Series

Seamless 4K Scaling Presentation Matrix Switchers

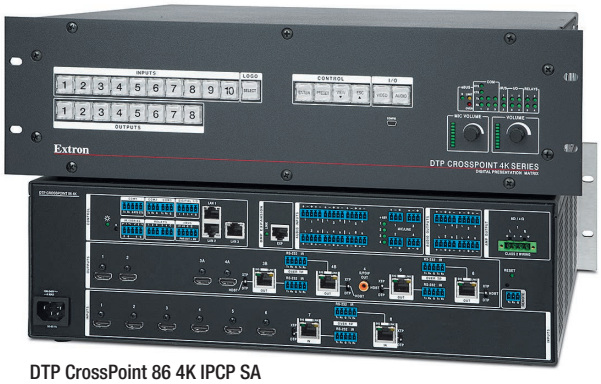
The Extron DTP CrossPoint® 4K Series matrix switchers deliver all of the technologically advanced capabilities you need for complete system integration. This includes a matrix switcher with 4K inputs and outputs, built-in independent scalers that are powered by Extron Vector™ 4K scaling technology and support seamless switching, integrated DTP® and XTP® signal extension, comprehensive audio DSP and AEC capabilities, a high performance mono or stereo amplifier, and an advanced control processor that is uniquely expandable.

Features

- All-in-one matrix switcher, scaler, audio DSP with AEC, audio power amplifier, and control processor
- Choose from 10x8, 8x6, 8x4, and 8x2 matrix switcher configurations
- Two DTP outputs feature mirrored HDMI connections to support local monitoring
- Compatible with DTP 230 Series and DTP 330 Series, plus XTP CrossPoint matrix switchers
- Available with integrated IPCP Pro 350 control processor:
  - Supports TouchLink Pro touchpanels and eBUS button panels
  - Supports LinkLicense
  - Integrated three port network switch



DTP CrossPoint 108 4K IPCP SA



DTP CrossPoint 86 4K IPCP SA

DTP CrossPoint 108 4K IPCP

10x8 Seamless 4K Scaling Presentation Matrix Switcher

Model	Version Description	Part Number
DTP CrossPoint 108 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1381-12
DTP CrossPoint 108 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1381-12A
DTP CrossPoint 108 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1381-13
DTP CrossPoint 108 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1381-13A

DTP CrossPoint 86 4K IPCP

8x6 Seamless 4K Scaling Presentation Matrix Switcher

Model	Version Description	Part Number
DTP CrossPoint 86 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1382-12
DTP CrossPoint 86 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1382-12A
DTP CrossPoint 86 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1382-13
DTP CrossPoint 86 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1382-13A

DTP CrossPoint 84 4K IPCP

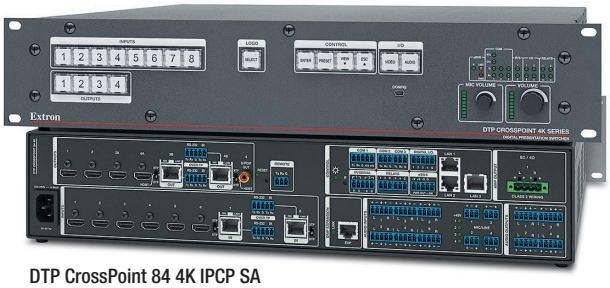
8x4 Seamless 4K Scaling Presentation Matrix Switcher

Model	Version Description	Part Number
DTP CrossPoint 84 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1515-12
DTP CrossPoint 84 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1515-12A
DTP CrossPoint 84 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1515-13
DTP CrossPoint 84 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1515-13A

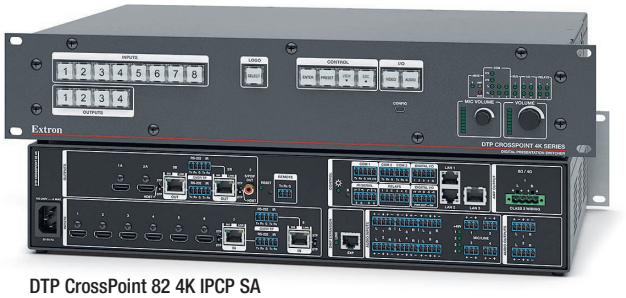
DTP CrossPoint 82 4K IPCP

8x2 Seamless 4K Scaling Presentation Matrix Switcher

Model	Version Description	Part Number
DTP CrossPoint 82 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1583-12
DTP CrossPoint 82 4K IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1583-12A
DTP CrossPoint 82 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1583-13
DTP CrossPoint 82 4K IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1583-13A



DTP CrossPoint 84 4K IPCP SA



DTP CrossPoint 82 4K IPCP SA

DTP CrossPoint 84 IPCP

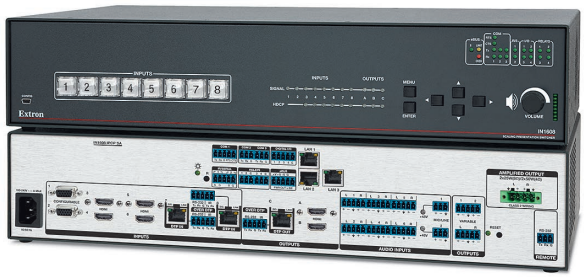
8x4 Scaling Presentation Matrix Switchers with DTP Extension

- All-in-one 8x4 4K matrix switcher, scaler, audio DSP, audio power amplifier, and control processor
- Two DTP inputs and six HDMI inputs
- Two HDMI outputs and two independently scaled DTP outputs
- Integrated DTP inputs and outputs support transmission of video, control, and audio up to 330 feet (100 meters) over a shielded CATx cable
- Supports 4K signals at all inputs and on both HDMI outputs
- Available with integrated IPCP Pro 350 control processor:
  - Supports TouchLink Pro touchpanels and eBUS button panels
  - Supports secure industry standard communications protocols
  - Supports LinkLicense
  - Integrated three port network switch
  - Supports 10/100/1000Base-T
  - Supports Ethernet-controllable devices
  - Fully customizable using Extron control system software
  - Create controller groups
- HDMI audio embedding and de-embedding
- Integrated audio digital signal processor with ProDSP™ 32/64-bit processing
- Audio input gain and attenuation
- Energy efficient Class D stereo or mono amplifier:
  2 x 50 watts @ 4 ohms; 2 x 25 watts @ 8 ohms
  1 x 100 watts @ 70 volts

Model	Version Description	Part Number
DTP CrossPoint 84 IPCP SA	2 x 50 Watt Stereo Power Amplifier	60-1368-12
DTP CrossPoint 84 IPCP SA	2 x 50 Watt Stereo Power Amplifier, LL UI Upgrade	60-1368-12A
DTP CrossPoint 84 IPCP MA 70	100 Watt 70 V Mono Power Amplifier	60-1368-13
DTP CrossPoint 84 IPCP MA 70	100 Watt 70 V Mono Power Amplifier, LL UI Upgrade	60-1368-13A

IN1608 IPCP

Eight Input HDCP-Compliant Scaling Presentation Switcher with DTP Extension



- Integrates HDMI, analog video, and audio sources into presentation systems
- Two DTP inputs, four HDMI inputs, and two universal analog video inputs
- Two HDMI outputs and two independently scaled DTP outputs
- Three simultaneous video outputs
- Integrated DTP inputs and outputs support transmission of video, control, and analog audio over a shielded CATx cable
- Available with dedicated HDBaseT twisted pair output
- Available with integrated IPCP Pro 350 control processor:
  - Supports TouchLink Pro touchpanels and eBUS button panels
  - Supports secure industry standard communications protocols
  - Supports LinkLicense
  - Integrated three port network switch
  - Supports 10/100/1000Base-T
  - Supports Ethernet-controllable devices
  - Fully customizable using Extron control system software
  - Create controller groups
- Two mic/line inputs with 48 volt phantom power
- HDMI audio embedding and de-embedding
- Remote powering of DTP transmitters and receivers
- Key Minder® continuously verifies HDCP compliance for quick, reliable switching
- Energy efficient Class D stereo or mono amplifier:
  2 x 50 watts @ 4 ohms; 2 x 25 watts @ 8 ohms
  1 x 100 watts @ 70 volts

Model	Version Description	Part Number
IN1608 IPCP SA	Control Processor and Stereo Amp, DTP 330	60-1238-12
IN1608 IPCP SA	Control Proc, Stereo Amp, DTP 330, LL UI Upgrade	60-1238-12A
IN1608 IPCP MA 70	Control Processor and 70 V Mono Amp, DTP 330	60-1238-13
IN1608 IPCP MA 70	Control Proc, 70 V Amp, DTP 330, LL UI Upgrade	60-1238-13A

Model	Version Description	Part Number
IN1608 IPCP SA HDBT	Control Processor, Stereo Amp, HDBaseT Out	60-1238-75
IN1608 IPCP SA HDBT	Control Proc, Stereo Amp, HDBT Out, LL UI Upgrade	60-1238-75A
IN1608 IPCP MA 70 HDBT	Control Proc, 70 V Mono Amp, HDBaseT Out	60-1238-76
IN1608 IPCP MA 70 HDBT	Control Proc, 70 V Amp, HDBT Out, LL UI Upgrade	60-1238-76A

Global Configurator Professional

Global Configurator Professional

Powerful Configuration Software

Global Configurator® Professional is Extron's most powerful and versatile control system configuration software. It is designed to be used exclusively with Extron Pro Series control systems, and helps streamline integration within today's demanding AV control environments. Powerful features, such as conditional logic, variables, and macros provide greater flexibility for more elaborate control system designs. Global Configurator has two modes. Global Configurator Plus is ideal for smaller scale applications requiring one control processor and one control interface. Global Configurator Professional is suited for applications requiring multiple control processors, enhanced functionality, and advanced configuration. Access to Global Configurator Professional requires an individual to successfully complete the Extron Control Professional Certification.

Enhanced Functionality With Use of "if" Statements

Conditional logic allows advanced functionality by making "if" and "else" statements available. With the help of conditional logic, one can easily set up operations that are dependent upon occurrence and non-occurrence of certain events. Conditional logic with local variables also allows examination of conditions within the configured button actions before performing a task. This ultimately helps in streamlining project creation by minimizing the need for monitors and schedules.

Combining Multiple Controllers for Larger Control Systems

The Controller Groups feature allows up to four control processors to be grouped and work as one big controller. Grouping the control processors will also reduce the need for long RS-232 cable runs, as the group can span several rooms instead of being limited to a single room. This feature enables easy system expansion and ideally serves advanced systems that require more control ports than are offered in a single control processor.

New Drivers Enable Greater System Capabilities

New Serial over Ethernet drivers expand control capabilities through devices such as Extron XTP Systems that are capable of IP to serial direct port control. In addition, Global Configurator now allows system designers to configure Extron IP Link Pro control processors for the latest Building Management System protocols, including BACnet, KNX, and DALI. Modern BMS allow for centralized monitoring and control of mechanical and electrical systems that include HVAC, lighting, power, fire, and security systems.

Features	Global Configurator Plus	Global Configurator Professional
Control Processors supported per system	1	4
Touchpanels supported per system	1 Primary 1 Mirrored	8
Ethernet Drivers supported	8	32
Controller Groups	No	Yes
Macros	Yes	Yes
User Defined Commands supported	Yes	Yes
Controller Templates	Yes	Yes
Conditional Logic	Yes	Yes
Local Variables	Yes	Yes
Library of Extron Certified Drivers	Yes	Yes
Virtual Touchlink support	Yes	Yes
GUI Design Software	GUI Designer	GUI Designer
LinkLicense Support	Yes	Yes

GlobalViewer Enterprise

INTERNET EXPLORER | MOZILLA FIREFOX | GOOGLE CHROME | APPLE SAFARI

Room Location Tree
Rooms can be organized for easy drill down to detailed room data and remote room control Web pages

Powerful Reporting Capabilities
Comprehensive collection of customizable management and administrative reports

Enhanced Event Alert List
Dynamic view of user-defined critical room events broken out into three collapsible windows: import/ re-import, device notification, controller notification

Help Desk View
Offers a customizable view of the entire enterprise in a single window and access to detailed room data with just a click of the mouse

GlobalViewer Enterprise - Extron's Server-Based AV Resource Management Software

GlobalViewer Enterprise

GlobalViewer® Enterprise server-based software takes enterprise-wide scheduling, monitoring, and help desk functionality to a new level. Building on an already powerful feature set, this latest version provides a host of new and enhanced features that streamline and simplify many common AV tasks. Microsoft® .NET® technology allows GlobalViewer Enterprise to integrate with third-party facility scheduling software for viewing room availability and managing meeting schedules. GlobalViewer Enterprise 2.4.0 requires configurations created in Global Configurator® 3.5.2 or later, or in Global Configurator Professional and Global Configurator Plus 1.3 or later.

Powerful AV System Management

GlobalViewer Enterprise is a powerful resource management tool that is designed to leverage the security, data, and access control capabilities of Microsoft Windows Server.

AV and IT support teams will appreciate the agility and flexibility GlobalViewer Enterprise provides to access usage data, create reports, and control the system from any computer on the LAN or WAN. The Help Desk view offers one to observe the entire enterprise in a single window and gain access to detailed room data with just a click of a mouse. GlobalViewer Enterprise also supports integration of third-party control systems.

Product Commissioning Service

Extron has developed a product commissioning service for GlobalViewer Enterprise to ensure a trouble-free system installation. Prior to installation, Extron Engineers will evaluate the server and network where GlobalViewer Enterprise will be installed in accordance with the software's minimum system requirements. They will also review and provide guidance for any existing Global Configurator project files. Commissioning services will include software installation review, project file upload assistance, and final system testing.

Enterprise-Wide Scheduling and Monitoring

It's easy to create global schedules and conditional monitors based on location and/or device type within GlobalViewer Enterprise. Schedules are supported for legacy projects, while conditional monitors are supported by both legacy and Pro Series projects. In an example application, a global schedule could be configured to turn off all of the displays in an entire building at 10:00 pm. Or, a specific monitor could be configured to send an e-mail or text message alert when any Epson projector exceeds 2,000 lamp hours.

Please visit the GlobalViewer Enterprise product page on www.extron.com for a full list of features.

GUI Designer

USER INTERFACE DESIGN SOFTWARE FOR TOUCHLINK® PRO

Extron GUI Designer is a software application used to design, create, and maintain Extron TouchLink® Pro user interfaces. Begin with ready-to-use design templates and resource kits, or start from scratch and build your own layout using our comprehensive software. The available design elements are fully customizable and matched carefully to popular AV system applications. In many cases, all the input sources, display control, and environmental settings are already in place. These resources are fully developed and include complete, detailed documentation.

Ready-to-use Templates and Resource Kits

GUI Designer includes ready-to-use templates for single display rooms, dual display rooms, divisible rooms, multi-image systems, and videoconference suites that can be used for TouchLink Pro products. Since system designs vary, our templates can be customized to suit the specific needs of any application. The GUI Designer design environment enables a wide variety of design choices for buttons, colors, logos, font styles, and more.

Start From Scratch and Design Your Own Layout

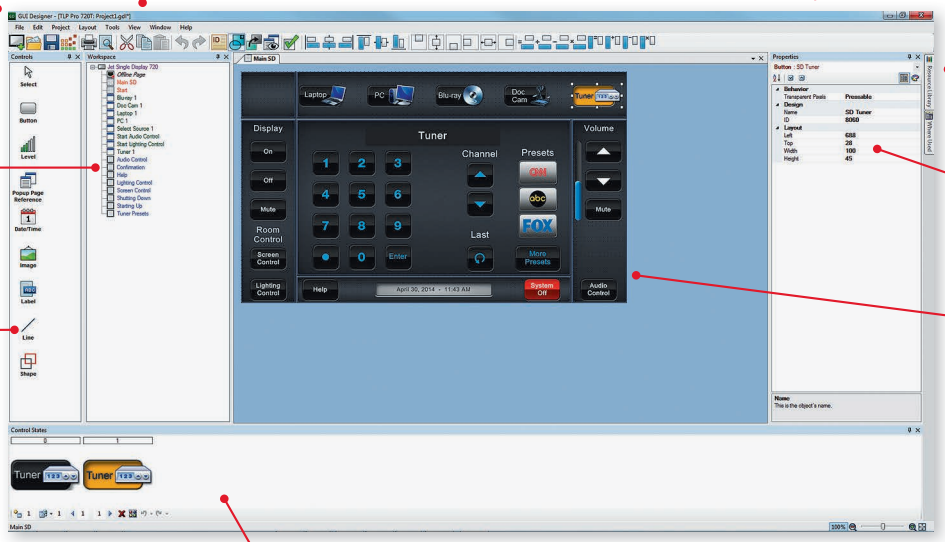
A wide array of design options enables users to develop their own touchscreen layouts to meet almost any system requirement. The GUI Designer resource library of shapes, graphics, and fonts provide a wide variety of choices for design of pages and pop ups to provide transport controls, multi-state buttons, 3D effects, video windows, dynamic text, and more. In addition, users can import their own images and font files into GUI Designer and use the resource management tool to provide further customization capabilities. The Designer Window displays the layout design in progress, so the changes can be seen while the customization occurs.

Object Layering Indicator
Notifies the user that there is at least one object that is being covered by another

Dynamic Scaling
Allows easy conversion of GUI designs between different size touchpanels

Share and Transfer Projects
Easily share and transfer projects while preserving all project resources

Intuitive Drag-and-Drop Interface
Familiar, easy-to-use menus and toolbars



Resource Library
Buttons, borders, 3D effects, shapes, graphics, fonts, and more

Workspace Window
Quick point-and-click access to multiple projects and individual project pages

Properties Window
Provides quick view and edit of object properties

Controls Window
For adding basic buttons, level indicators, date/time displays, video windows, and more

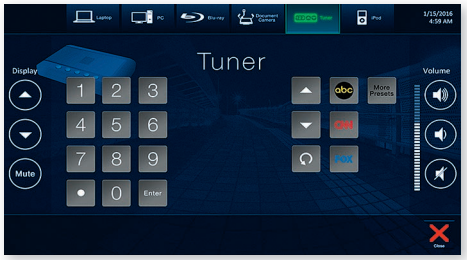
Designer Window
Displays layout of main page and popup pages

Control States Window
Easily modify and customize the visual states of a button

TouchLink Pro Themes

Extron has developed a series of pre-configured design themes to help streamline and accelerate the TouchLink Pro user interface development process. Each design theme is a complete collection of graphical elements used to create a cohesive-looking user interface.

Speed

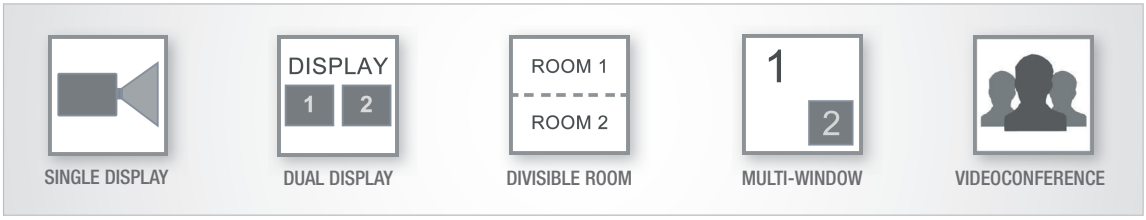


Turbulence

Jet

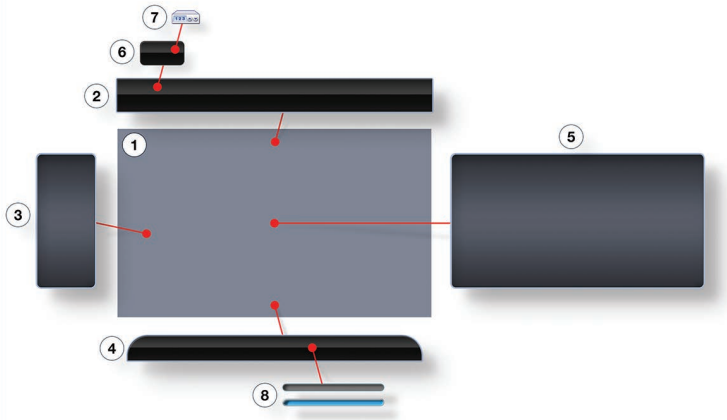
Templates

A template is a ready-to-use file imported into Extron's GUI Designer software that allows one to quickly develop a TouchLink Pro Graphical User Interface project. When starting a project, the developer is first given the choice of what theme they would like to use followed by the desired application for the system. The developer then has the option to use the templates "as is" or modify them to create new pages. Elements and icons in the resource kits are also included as part of the template package. Templates are available for download from the Extron Web site.



Resource Kits — Available in standard and high resolution

A Resource Kit is a complete themed collection of graphic elements and sound files that a graphical user interface developer can download from the Extron Web site. It provides the developer with everything needed to make a consistent and cohesive user interface based on one of the Extron design themes. The graphical elements include: Backgrounds, Headers, Side Bars, Footers, and Button Graphics in both their on and off states. Audio files that can be used for feedback are also included. Each resource kit also includes a substantial library of universal TV icons, as well as common AV icons that match the selected theme.



1. Backgrounds
2. Headers
3. Side Bars
4. Footers
5. Pop-up Backgrounds
6. Buttons
7. Icons
8. Graphic Elements

Extron Control

Extron Control

iPad Control App for TouchLink and MediaLink

Extron Control is an easy-to-use AV control system app that gives users complete access to Extron control systems directly from an iPad. After a quick initial setup, the iPad connects to the desired room, allowing for a seamless, highly-responsive control experience. The app automatically loads the user interfaces present on any Extron control product without a lengthy setup and customization process. The familiar interfaces emulate the TouchLink touchpanel or MediaLink controllers in your room, and all button presses are kept in sync between the app and your Extron control devices. Extron Control is available for immediate download from the iTunes App Store.

Extron Control Key Features

- Provides a convenient point of control for Extron control systems
- Supports all TouchLink, TouchLink Pro touchpanels and Ethernet-enabled MediaLink, MediaLink Plus controllers
- Familiar user interface provides the same experience as the touchpanel or controller
- Supports Extron LinkLicense for User Interfaces
- Room Manager allows users to easily add touchpanels or controllers and customize room lists
- Quickly switch between rooms with a single tap on the screen
- Button tracking allows iPad and touchpanel or controller to stay in sync
- Provides real-time status and remote control of multiple rooms for troubleshooting and management

Extron LinkLicense

Extron LinkLicense® is a quick, cost-effective way for people to add even more powerful capabilities to Extron products. LinkLicense is applied per-system, not per-user, and there are no hidden costs.

LinkLicense for User Interfaces

This Pro Series user interface upgrade is an easy way for people to use their mobile devices or computers as primary control interfaces in an Extron Pro Series control system. When combined with an Extron IPCP Pro control processor and the Extron Control App, BYOD room control is easier than ever.

Features

- Use a mobile device or computer as the primary control interface in an Extron control system
- Simplifies deployment of BYOD - Bring Your Own Device control designs

LinkLicense for Software Conferencing

The Software Conferencing upgrade is used in conjunction with Extron Codec Connect. It transforms traditional software conferencing codecs into customizable, user-driven applications that enhance all aspects of both conferencing and AV system control.

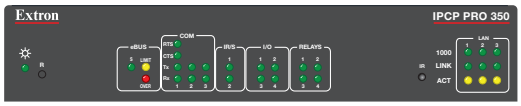
Features

- Helps transform traditional software conferencing codecs into customizable, user-driven applications that enhance all aspects of both conferencing and AV system control
- Works with Extron Codec Connect
- Operates seamlessly with the Extron Control App

LinkLicense for User Interfaces in Three Easy Steps:

Step 1

Purchase an Extron IPCP Pro Series Control Processor with a LinkLicense included or add a LinkLicense to an existing IPCP Pro control processor.

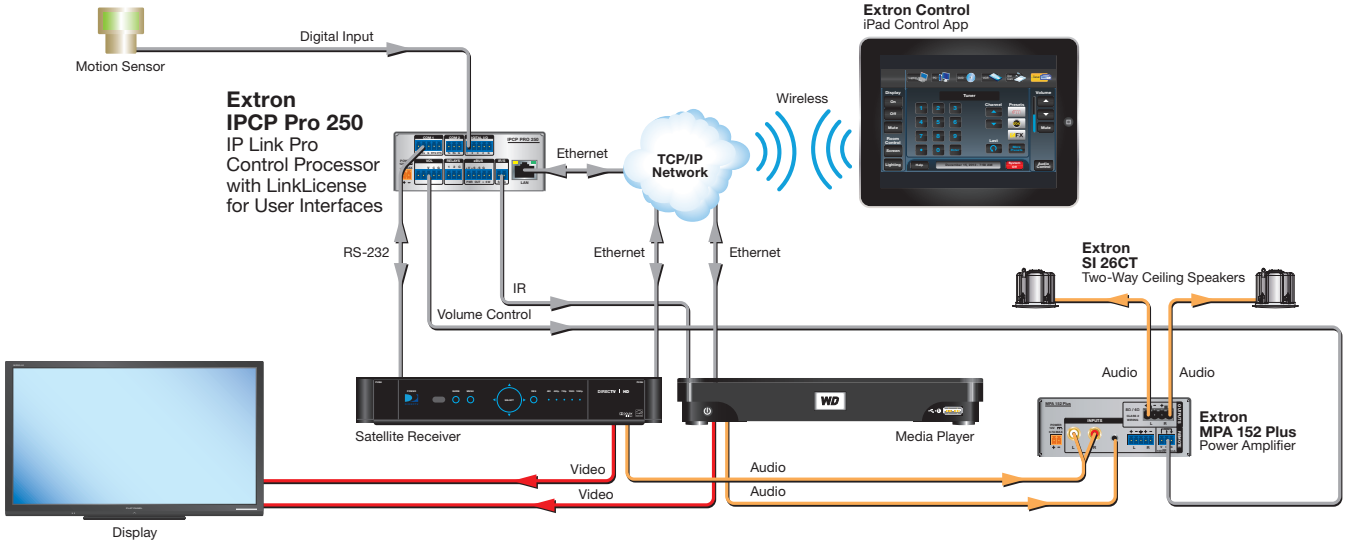


Step 2

Create a custom user interface and configure your control system using Global Configurator Plus or Professional.

Step 3

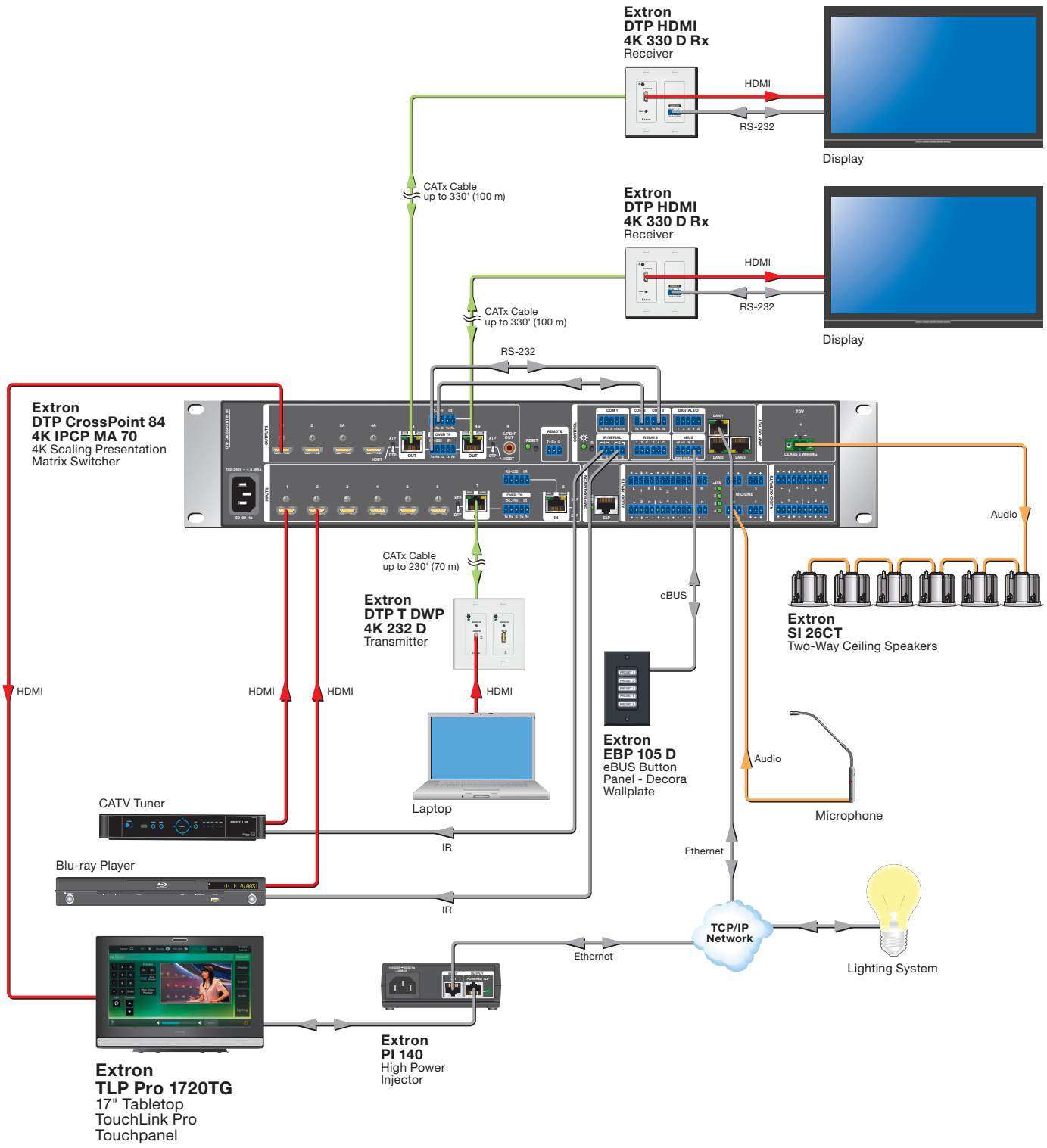
Upload your user interface designs and use your mobile device or computer to control the system.



Application Diagrams

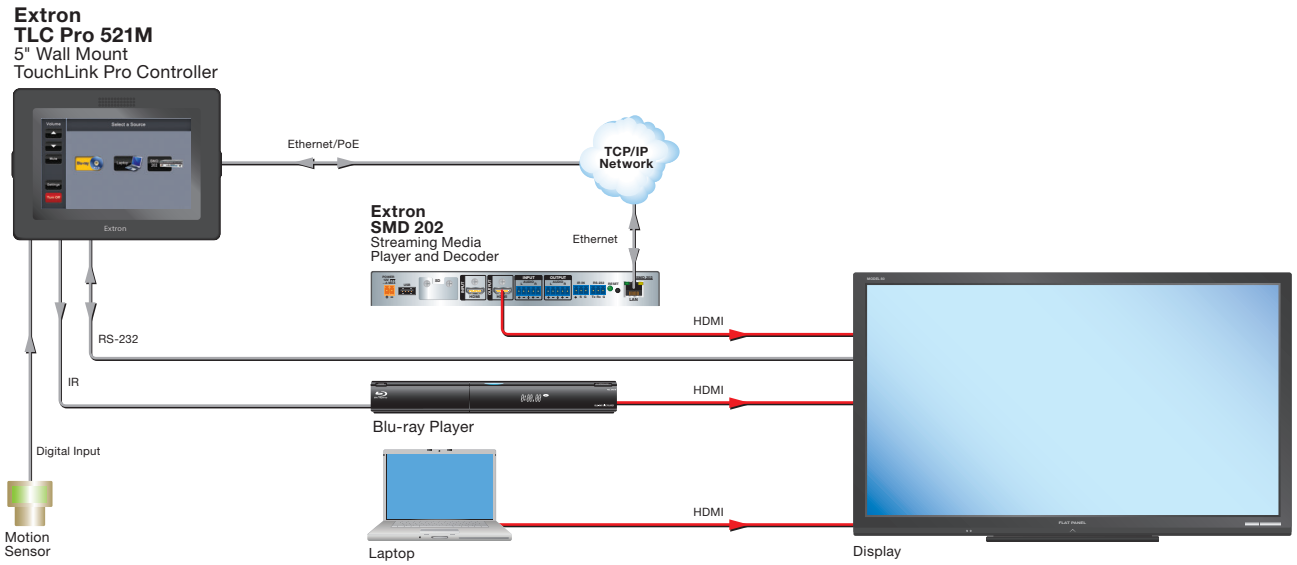
DTP CROSSPOINT 84 4K IPCP MA 70 WITH TLP PRO 1720TG TOUCHPANEL

In this dual display presentation environment, a TLP Pro 1720TG provides an easy-to-use graphical interface for controlling both displays as well as providing source selection and volume control of the Extron DTP CrossPoint 84 4K IPCP MA 70 Scaling presentation matrix switcher. Behind the scenes, Extron Certified device drivers enable full functionality of all the devices connected to the integrated IPCP Pro control processor. Additionally the Extron EBP 105 D allows for direct control of various lighting presets.

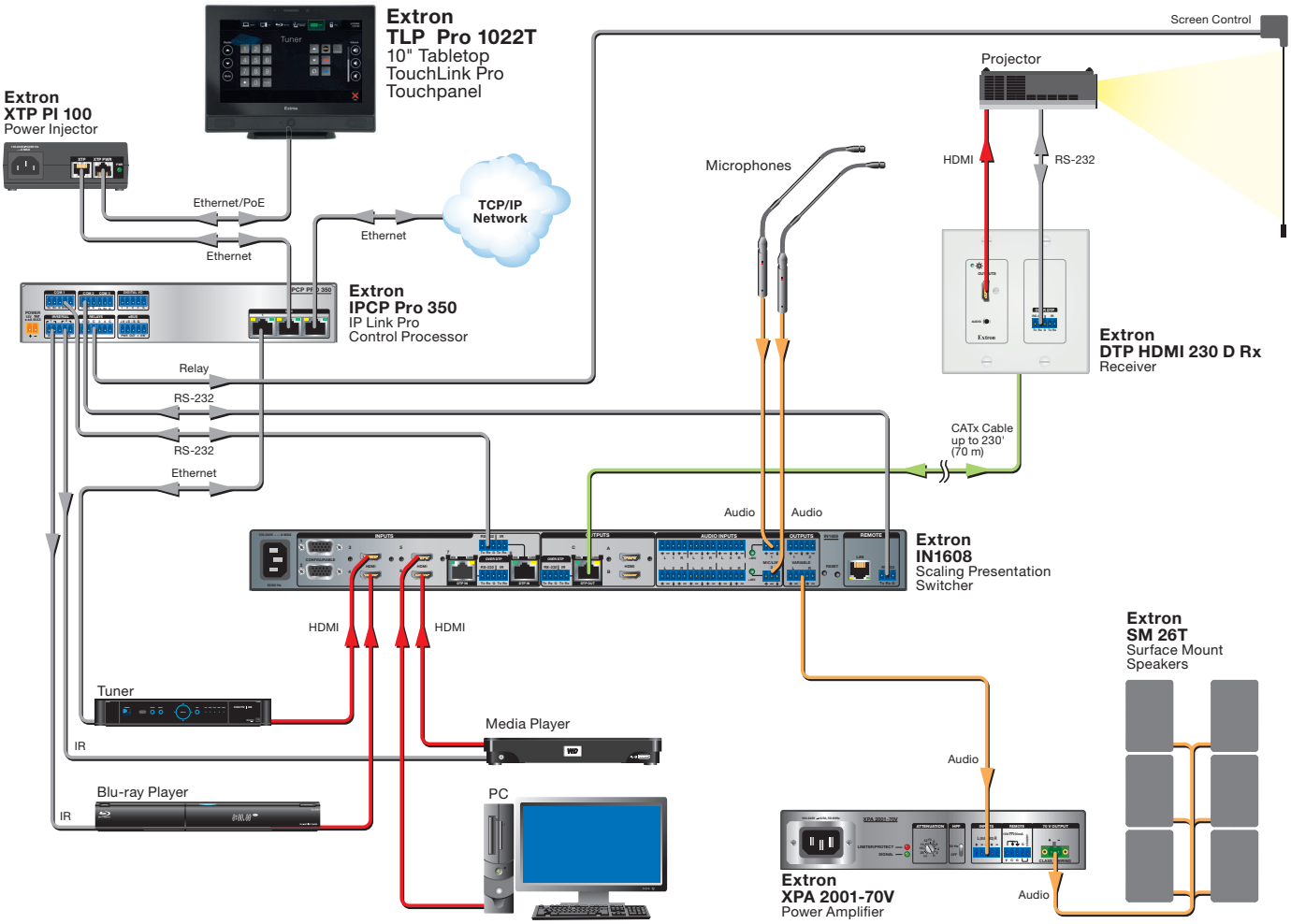


Application Diagrams

TLC PRO 521M WITH BUILT-IN CONTROL PROCESSOR



IPCP PRO 350 CONTROL PROCESSOR WITH TLP PRO 1022T TOUCHPANEL



Certification

Extron Control Systems Certification Programs

Establish Your Knowledge of Extron Control Systems

Extron offers two new Control Systems Certification programs designed to prepare individuals to successfully deploy and maintain customized AV control systems that are built around our recently-launched MediaLink® Plus, IP Link® Pro, and TouchLink® Pro products. The Extron Control Specialist – ECS and Extron Control Professional – ECP certifications focus on control system customization for a wide range of applications, advanced device communications, troubleshooting, and best practices.

Certification Comparison

Extron Control Specialist - ECS

Audience

This program is ideal for industry professionals who are required to install, configure, operate, manage, and troubleshoot Extron Pro Series control systems. This includes design engineers, AV system installers, and system integration project managers. AV control system design and installation experience is recommended.

Delivery Method

ECS is available through instructor-led training. To achieve certification, students who complete this course must also pass an Extron-proctored exam.

Course Content

ECS consists of the following general categories:

- Learn Global Configurator Plus software
- Control system design concepts
- Configure a wide range of room control functions using Global Configurator Plus
- Create custom control interfaces using GUI Designer software, plus GUI design best practices
- Validate Pro Series control systems in multiple AV environments using acquired knowledge of installation, configuration, and commissioning principles

Extron Control Professional - ECP

Audience

This program is ideal for advanced users or control system programmers who understand the complexities of more sophisticated systems and wish to access Global Configurator Professional. A background of 2-5 years of AV control system design, programming, and installation experience is recommended.

Delivery Method

ECP is available through instructor-led training. To achieve certification, students who complete the course must also pass an Extron-proctored hands-on exam.

Course Content

ECP is a three-day course that consists of:

- Learn Global Configurator Professional software and the advanced features used in complex system designs
- Sophisticated control system design concepts and advanced configuration techniques
- Create custom control interfaces using GUI Designer software, plus GUI design best practices
- Validate complex Pro Series control systems in multiple AV environments using acquired knowledge of installation, configuration, and commissioning principles

Learn More

To find out more about the Extron Control Systems Certification programs, contact your Extron S3 Customer Support Representative.

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www.extron.com

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TLP Pro 1520MG

15" WALL MOUNT TOUCHLINK PRO TOUCHPANEL

- **15" edge-to-edge glass, capacitive touchscreen with 1366x768 resolution and 16 million colors**
- **Faster processing and more memory**
- **Compatible with all IP Link® Pro control processors**
- **High resolution video preview with HDMI and XTP inputs**
- **Touchpanel receives power and control over a single Ethernet cable, eliminating the need for a local power supply**
- **Built-in speakers provide stereo audio**
- **Light sensor adjusts screen brightness as the ambient room lighting changes**
- **Mounts on a wall, lectern, or any flat surface**
- **System connection status indicator provides visual feedback if the touchpanel is not communicating with a control processor**
- **Supports TouchLink for iPad and TouchLink for Web**

The Extron TLP Pro 1520MG is a 15" wall mount touchpanel with a capacitive, edge-to-edge glass touchscreen. As with all TouchLink® Pro models, this customizable touchpanel features faster processing and more memory. The TLP Pro 1520MG has video preview inputs that support high resolution HDCP-compliant video from HDMI sources and Extron XTP devices. The touchpanel conveniently receives power and communications over a single Ethernet cable. The TLP Pro 1520MG is ideal for control applications requiring a fully-customizable wall mount touchpanel with a large control surface and multi-source video preview.

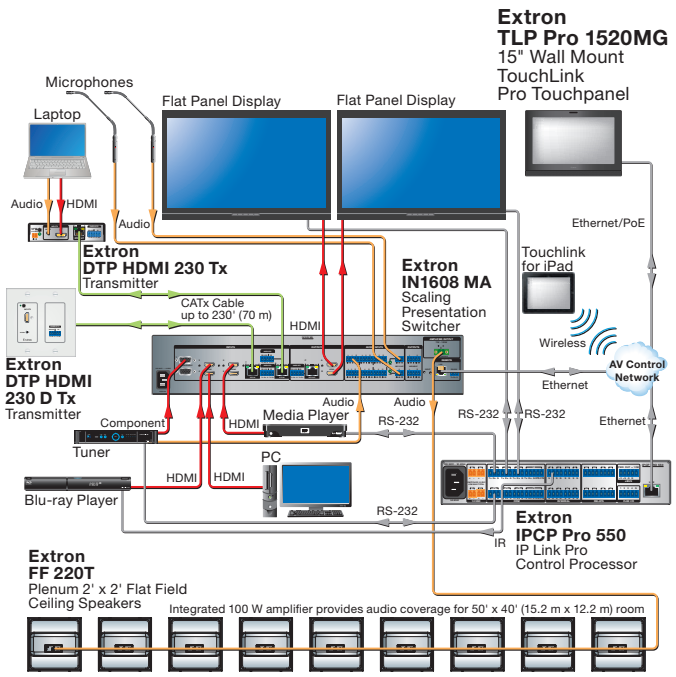
DESCRIPTION

The Extron **TLP Pro 1520MG** is a 15" wall mount touchpanel with a vibrant, 1366x768 capacitive touchscreen. Capacitive technology provides a brighter, more responsive touchscreen with a greater vertical viewing angle. Dual video preview inputs support high resolution video from HDMI sources and Extron XTP devices.

The TLP Pro 1520MG works in conjunction with any Extron IP Link® Pro control processor and is designed for use in AV system applications that require complete, interactive control of conferencing systems, displays, switchers and source devices. TouchLink Pro touchpanels operate using standard network infrastructure and are easy to install with reliable and cost effective Ethernet cable.

All TouchLink Pro touchpanels are customized using Extron GUI Designer software. This powerful interface design software offers ready-to-use resource kits to help design a wide variety of interfaces for rooms and presentation environments.

APPLICATION DIAGRAM



SPECIFICATIONS

DISPLAY	
Screen type	Active matrix TFT color display
Size	15.6" (39.5 cm), measured diagonally
Resolution	1366x768
Aspect ratio	Widescreen
Color depth	16 million colors
Contrast	500:1
MEMORY	
SDRAM	512 MB
Flash	512 MB
XTP – INTERCONNECTION BETWEEN TRANSMITTER AND RECEIVER	
Signal transmission distance	330' (100m) using CAT 5e/6/7 UTP or STP cable (24 AWG or better)
VIDEO INPUT	
Resolution range	Up to 1920x1200*, 2K, or 1080p (HDTV) * reduced blanking
Number/signal type	1 HDMI (HDCP compliant) 1 XTP
Standards	DVI 1.0, HDMI, HDCP
CONTROL – ETHERNET INTERFACE	
Ethernet data rate	100Base-T, half/full duplex with autodetect
Protocol	DHCP, DNS, HTTP, HTTPS, ICMP, SFTP, SSH, TCP/IP, UDP/IP
CONTROL — USB	
Number/signal type	2 high-speed USB 2.0 devices
USB standards	USB 2.0, USB 1.1, USB 1.0 compatible
USB data rates	Low speed (1.5 Mbps), full speed (12 Mbps)
AUDIO OUTPUT – SPEAKER	
Speaker output	2 speakers (stereo), 86 dB SPL, 0.1 watt, 0.1 m, half space
AUDIO OUTPUT – LINE LEVEL	
Number/signal type	1 stereo, unbalanced
GENERAL	
Power supply	External Input: 100-240 VAC, 50-60 Hz Output (power injector): 56 VDC, 0.8 A, 45 watts
Power input requirements	12 VDC or power injector
Mounting	
Rack mount	With optional kit
Furniture or wall mount	With included hardware or optional accessories
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 and WEEE.
Warranty	3 years parts and labor; touchpanel display and overlay components are covered for 1 year

Model	Version Description	Part number
TLP Pro 1520MG	Black w/PoE Inj - Wall	60-1342-02

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

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