

# 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



**Extron Electronics**  
INTERFACING, SWITCHING AND CONTROL

## 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.

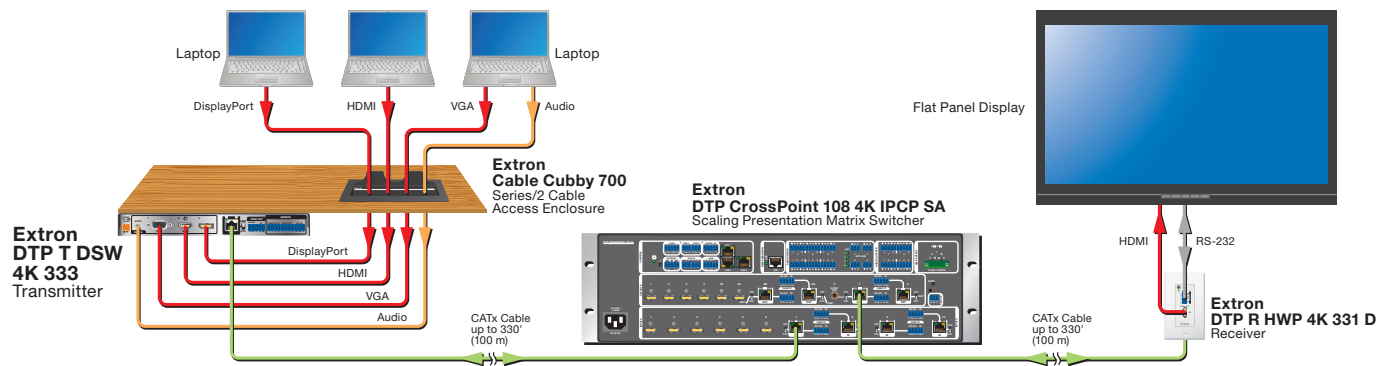
The DTP T DSW 4K models provide reliable switching and transmission of DisplayPort, HDMI, and analog video signals. They can automatically switch between digital and analog sources, plus they support RS-232 and contact closure remote control with tally output for easy operation in unmanaged locations. 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 powering of DTP receiver** – 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

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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

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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 <sup>1</sup>	24, 25, 30, 50, or 60 fps
Chroma sampling <sup>1</sup>	4:4:4, 4:2:2, or 4:2:0
Color bit depth <sup>1</sup>	8 bits per color
Signal type <sup>1</sup>	HDMI 1.4, DisplayPort 1.1a, HDCP 1.4
Max. video data rate <sup>1</sup>	
HDMI	10.2 Gbps (3.4 Gbps per color)
DisplayPort	10.8 Gbps (2.7 Gbps per lane)
<b>NOTE:</b> <sup>1</sup> Subject to the maximum data rate limit. Use our calculator at <a href="http://www.extron.com/4Kdata">www.extron.com/4Kdata</a> to determine video parameters supported by this data rate.	

## VIDEO

<b>VGA input</b>	
Gain	Unity
Bandwidth	170 MHz (-3 dB)
Crosstalk	-50 dB @ 10 MHz, -30 dB @ 100 MHz

<b>HDMI input</b>	
Maximum data rate	10.2 Gbps (3.4 Gbps per color)
Maximum pixel clock	300 MHz

<b>DisplayPort input</b>	
Maximum data rate	10.8 Gbps (2.7 Gbps per lane)
Maximum pixel clock	300 MHz

## VIDEO INPUT

<b>Connectors</b>	
VGA input	1 female 15-pin HD
HDMI input	1 female HDMI, type A
DisplayPort input	1 female DisplayPort

<b>VGA input</b>	
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

<b>Number/signal type</b>	
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
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## DTP signal

<b>Signal transmission distance</b>	
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)
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## 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
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**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)

<b>Regulatory compliance</b>	
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](http://www.extron.com)  
Specifications are subject to change without notice.

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