

Specifications

DTP T USW 233

Video

VGA

Gain	Unity
Bandwidth	170 MHz (-3 dB)
Crosstalk	-50 dB @ 10 MHz, -30 dB @ 100 MHz
Switching speed	<5 ms. (max)

HDMI

Maximum data rate	6.75 Gbps (2.25 Gbps per color)
Maximum pixel clock	165 MHz
Resolution range	Up to 1920x1200 or 1080p @ 60 Hz; 12-bit color, 2k
Formats	RGB and YCbCr digital video
Standards	DVI 1.0, HDMI, HDCP 1.1, CEA-861E

Video input — HDMI

Number/signal type	2 HDMI inputs (or single-link DVI-D with the appropriate DVI-HDMI adapters)
Connectors	2 female HDMI type A

Video input — VGA

Number/signal type	1 VGA-QXGA; RGBHV; Y, R-Y, B-Y
Connectors	1 female 15-pin HD
Nominal level	1 Vp-p for Y of YUV 0.7 Vp-p for RGB, R-Y, and B-Y
Min./max. level	Analog, 0.3 V to 1.5 Vp-p with no offset
Impedance	75 ohms
Horizontal frequency	15 kHz to 145 kHz
Vertical frequency	30 Hz to 170 Hz
Return loss	<-40 dB @ 5 MHz

NOTE: The VGA input is digitized and output as DTP. The VGA signal is not scaled.

Sync — VGA

Input type	RGBHV, bi-level and tri-level sync
Input level	1.9 V to 5.0 Vp-p
S/N	>90 dB at maximum input (unweighted)
Max. input voltage	5.0 Vp-p

Interconnection between transmitter and receiver

Number/signal type	1 DTP 230 output
Connector	1 female RJ-45
Termination standard	TIA/EIA T568B
Transmission distance	Up to 230' (70 m) using CAT 5e/6/6a/7 cable or XTP DTP 24 STP cable
Cable requirements	Solid conductor, 24 AWG or better
Cable recommendations	400 MHz bandwidth, STP (shielded twisted pair)

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

Audio

Gain.....	Unbalanced output: 0 dB; balanced output +6 dB
Frequency response.....	20 Hz to 20 kHz, ± 0.5 dB
THD + Noise.....	0.01% @ 1 kHz at nominal level
S/N.....	>90 dB, at maximum input (unweighted)
Crosstalk.....	<-45 dB @ 20 kHz, or -72 dB @ 1 kHz or below
Stereo channel separation.....	>80 dB @ 1 kHz to 20 kHz

Audio input

Number/signal type.....	1 analog stereo, unbalanced or 2-digital audio, embedded in the HDMI
-------------------------	---

NOTE: Analog audio is not embedded onto the digital video signal.

Connectors.....	1 female 3.5 mm mini stereo jack 2 female HDMI Type A (shared with video input)
Source formats	
HDMI.....	LPCM up to 7.1/24-bit/192 kHz, 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
Analog.....	Analog stereo audio
Impedance.....	10k ohms, DC coupled
Nominal level.....	-10 dBV
Maximum level.....	+6dBV, unbalanced
CMRR.....	>60 dB typ @ 1 kHz
Input gain adjustment.....	-18 dB to +24 dB, 1 dB steps, adjustable per input

NOTE: 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV \approx 2 dBu

Audio output

Number/signal type.....	1 analog audio over DTP signal, or 1 embedded digital audio over DTP signal
Connectors.....	1 RJ-45 jack

Control/remote — switcher

Serial control port.....	RS-232 via (1) 3.5 mm, 3 pole captive screw connector
Serial control pin configuration.....	Pin 1 = Tx, pin 2 = Rx, pin 3 = Gnd
Baud rate and protocol (RS-232).....	9600 baud, 8 data bits, 1 stop bit, no parity
Tally port.....	(1) 3.5 mm, 4 pole captive screw connector
Tally port pin configuration.....	Pin 1 = input 1 tally, pin 2 = input 2 tally, pin 3 = input 3 tally, pin 4 = +5 VDC
Contact closure remote control.....	(1) 3.5 mm, 4 pole captive screw connector
Contact closure pin configuration...	Pin 1 = input 1, pin 2 = input 2, pin 3 = input 3, pin 4 = Gnd
USB control port.....	1 front panel female mini USB, type B
USB standards.....	USB 2.0, high speed
Program control.....	Extron Simple Instruction Set (SIS™)

Control/remote — (RS-232/IR over DTP)

NOTE: Protocol is mirrored between the connected DTP 230 Rx and the Over DTP output port. Signals from a control device pass into the Over DTP port, are embedded with the DTP signal, and sent to the DTP 230 Rx endpoint for control of remote sink and source devices.

The Over DTP port is a pass-through connection to the DTP endpoint. There is no RS-232 or IR insertion from the DTP T USW 233 control port to the Over DTP port.

Serial control pass-through port.....	1 RS-232 and IR via (1) 3.5 mm, 5-pole captive screw connector
Serial control pin configuration.....	Pin 1 = Tx, pin 2 = Rx, pin 3 = Gnd
Baud rates.....	300 to 38400 baud
Protocol	8 or 7 data bits 1 or 2 stop bits no parity (default) even or odd parity
IR pass-through control port.....	TTL level (0 to 5 V) modulated infrared control from 30 kHz up to 60 kHz
IR control pin configuration.....	3 = GND, 4 = IR Tx, 5 = IR Rx

General

Power supply.....	External Input: 100-240 VAC, 50-60 Hz Output: 12 VDC, 1 A, 12 watts
Power consumption	
Device	5.5 watts
Device and power supply	7.2 watts

NOTE: The DTP T USW 233 can be powered either locally by the external power supply or remotely by a receiver on the other end of the twisted pair cable.

Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling.....	Convection, vents on top and sides
Thermal dissipation	
Device	15.4 BTU/hour
Device and power supply	21.0 BTU/hour
Mounting	
Rack mount.....	Yes, with optional 1U high rack shelf
Furniture mount	Yes, with optional under-desk mounting kit
Enclosure type.....	Metal
Enclosure dimensions	1.0" H x 8.75" W x 6.0" D (half rack wide) (2.5 cm H x 22.2 cm W x 15.2 cm D) (Depth excludes connectors.)
Product weight.....	0.6 lbs (0.3 kg)
Shipping weight.....	2 lbs (1 kg)
Vibration.....	ISTA 1A in carton (International Safe Transit Association)
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

NOTE: **CE and FCC testing is conducted with STP (shielded twisted pair) I/O cable.

Warranty..... 3 years parts and labor

NOTE: All nominal levels are at $\pm 10\%$.

NOTE: Specifications are subject to change without notice.

8.0-021714-D7