

# Specifications

## Quantum® Connect

- NOTES:**
- The Quantum Connect has eight slots for factory-installed input/output cards. Each slot can accommodate up to 12 S-video or composite video inputs, 2 analog RGB or component video inputs, 2 DVI inputs, 2 HDMI inputs, 2 3G/HD/SD-SDI inputs, 2 RGB or DVI outputs, or 2 HDMI outputs.
  - The system is configured at the factory at the time of order. The I/O cards are not available separately for upgrades.

### Video input — composite or S-video input

Number/signal type .....	12 S-video, composite video
Connectors .....	2 female 26-pin HD (included adapter allows input on 24 female BNC connectors)
Nominal level .....	1 Vp-p for Y of S-video and for composite video 0.3 Vp-p for C of S-video
Minimum/maximum levels.....	Analog: 0.1 V to 2.0 Vp-p with no offset
Impedance .....	75 ohms
Horizontal frequency.....	15 kHz
Vertical frequency.....	50 Hz, 59.94 Hz

### Video input — RGB or component video input

Number/signal type .....	2 analog VGA-WUXGA RGBHV, RGsB, HDTV, component video
Connectors .....	2 female 15-pin HD
Nominal level .....	1 Vp-p for Y of component video and for G of RGsB 0.7 Vp-p for RGB and for Pr and Pb of component video
Minimum/maximum levels.....	Analog: 0.3 V to 2.0 Vp-p with no offset
Impedance .....	75 ohms
Horizontal frequency.....	15 kHz to 100 kHz
Vertical frequency.....	50 Hz to 75 Hz
Resolution range .....	640x480 to 1920x1200, NTSC, PAL, 480p, 576p, 720p, 1080i, 1080p

### Video input — DVI input

Number/signal type .....	2 digital VGA-WUXGA RGB, single link DVI
Connectors .....	2 female DVI-I (analog signals are not supported)
Horizontal frequency.....	31 kHz to 100 kHz
Vertical frequency.....	24 Hz to 85 Hz
Resolution range .....	640x480 to 1920x1200, 480p, 576p, 720p, 1080i, or 1080p
Formats.....	RGB digital video
Standards.....	DVI 1.0

### Video input — HDMI input

**NOTE:** \*Appropriate HDMI to DVI cables or adapters are required for DVI signal input/output.

Number/signal type .....	2 single link HDMI (or DVI*)
Connectors .....	2 female HDMI type A (analog signals are not supported)

Signal type .....	2 Single link HDMI (or DVI*)
Digital video .....	RGB digital video (DVI and HDMI standards) or Y, Cr, Cb digital component video (HDMI standard)
EDID and DDC .....	Supports Extended Display Identification Data (EDID) and Display Data Channel (DDC) data using DVI and HDMI standards. Factory or custom EDID tables are user selectable.
HDCP .....	Compliant with High-bandwidth Digital Content Protection (HDCP) using DVI and HDMI standards
Horizontal frequency .....	31 kHz to 100 kHz
Vertical frequency.....	24 Hz to 85 Hz
Resolution range .....	640x480 to 1920x1200, 480p, 576p, 720p, 1080i, or 1080p
Standards.....	DVI 1.0, HDMI, HDCP
Equalization .....	Automatic

### Video input — SDI input

Number/signal type .....	2 3G/HD/SD-SDI
Connectors .....	2 female HD-BNC (HD-BNC to female BNC adapters are included.)
Data rates .....	270 Mbps to 2.97 Gbps
Horizontal frequency .....	15 kHz to 100 kHz
Vertical frequency.....	23.98 Hz to 60 Hz
Resolution range .....	480i, 576i, 720p, 1080i, or 1080p
Formats.....	YCbCr digital component video
Return loss .....	<-15 dB @ 1 MHz to 1.5 GHz
Input cable equalization .....	Automatic for up to -30 dB of cable loss
3G-SDI.....	60 meters (200 feet) using Extron RG6 cable 45 meters (150 feet) using Extron RG59 cable
HD-SDI .....	120 meters (400 feet) using Extron RG6 cable 90 meters (300 feet) using Extron RG59 cable
SDI .....	150 meters (500 feet) using Extron RG6 cable 120 meters (400 feet) using Extron RG59 cable

**NOTE:** The transmission distance varies depending on the signal resolution and on the type of cable.

Standards.....	SMPTE 259M-C, SMPTE 292M, SMPTE 424M
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### Video processing — inputs

Maximum data rate.....	DVI and HDMI inputs: 4.95 Gbps (1.65 Gbps per color) SDI inputs: 2.97 Gbps
Digital sampling .....	24 bit, 8 bits per color; 13.5 MHz standard (S-video, composite video), 205 MHz standard (RGB, component video), 165 MHz standard (DVI and HDMI)
Colors .....	16.78 million

### Video processing — outputs

Maximum data rate.....	4.95 Gbps (1.65 Gbps per color)
Digital sampling .....	24 bit, 8 bits per color, 165 MHz standard
Colors .....	16.78 million

### Video output — RGB or DVI output

Number/signal type .....	2 scaled RGBHV or single link DVI
Connectors .....	2 female DVI-I (analog and digital signals are both active)
Nominal level .....	0.7 Vp-p for RGB
Minimum/maximum levels.....	0.0 V to 1.0 Vp-p
Impedance .....	75 ohms
Vertical frequencies .....	50 Hz, 60 Hz

Scaled resolution .....	640x480 <sup>1,2</sup> , 800x600 <sup>1,2</sup> , 848x480 <sup>1,2</sup> , 1024x768 <sup>1,2</sup> , 1152x870 <sup>1,2</sup> , 1280x768 <sup>1,2</sup> , 1280x800 <sup>1,2</sup> , 1280x1024 <sup>1,2</sup> , 1360x768 <sup>1,2</sup> , 1366x768 <sup>1,2</sup> , 1440x900 <sup>1,2</sup> , 1400x1050 <sup>1,2</sup> , 1408x1050 <sup>1,2</sup> , 1600x1200 <sup>1,2</sup> , 1680x1050 <sup>1,2</sup> , 1920x1200 <sup>1,2</sup> HDTV: 720p <sup>1,2</sup> , 1080p <sup>1,2</sup> 1 = at 50 Hz, 2 = at 60 Hz
Standards.....	DVI 1.0

### Video output — HDMI output

Number/signal type .....	2 scaled single link HDMI (HDCP compliant)
Connectors .....	2 female HDMI type A
Vertical frequency.....	50 Hz, 60 Hz
Scaled resolutions.....	640x480 <sup>1,2</sup> , 800x600 <sup>1,2</sup> , 848x480 <sup>1,2</sup> , 1024x768 <sup>1,2</sup> , 1152x870 <sup>1,2</sup> , 1280x768 <sup>1,2</sup> , 1280x800 <sup>1,2</sup> , 1280x1024 <sup>1,2</sup> , 1360x768 <sup>1,2</sup> , 1366x768 <sup>1,2</sup> , 1440x900 <sup>1,2</sup> , 1400x1050 <sup>1,2</sup> , 1408x1050 <sup>1,2</sup> , 1600x1200 <sup>1,2</sup> , 1680x1050 <sup>1,2</sup> , 1920x1200 <sup>1,2</sup> HDTV: 720p <sup>1,2</sup> , 1080p <sup>1,2</sup> 1 = at 50 Hz, 2 = at 60 Hz
Standards.....	DVI 1.0, HDMI, HDCP

### Sync

Standards.....	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input type .....	RGBHV, RGsB, bi-level or tri-level component video
Output type .....	RGBHV
Input level .....	2.75 V to 5.0 Vp-p for RGBHV 0.6 Vp-p for component video tri-level sync 0.3 Vp-p for component video bi-level sync or RGsB
Output level .....	2.4 Vp-p for RGBHV
Input impedance .....	2.2k ohms for H and V
Output impedance .....	2.2k ohms
Max. input voltage .....	5 Vp-p
Polarity.....	Positive or negative

### Control/remote — processor/decoder/scaler

Ethernet ports .....	1 female RJ-45 connector for control, networked
Ethernet data rate .....	10/100Base-T, half/full duplex with autodetect
Ethernet protocol .....	IP, TCP
Ethernet default settings .....	Link speed and duplex level = autodetected IP address = 192.168.254.254 Subnet mask = 255.255.0.0 Gateway = 0.0.0.0 DHCP = not supported
Storage .....	80 GB (1 IDE drive)
Internal operating system .....	Microsoft® Windows® XP® embedded
Program control .....	Extron Quantum Connect control/configuration software for Windows

**NOTE:** The operating system is hard-coded into the Quantum Connect and Windows updates are not required. The C drive, which contains the operating system, is write protected to prevent unauthorized access.

### Control/remote — setup and troubleshooting

Number/signal type .....	1 analog VGA-UXGA RGBHV local monitor 2 USB 1 PS/2 mouse and keyboard
Connectors .....	1 female 15-pin HD 2 USB type A 1 female PS/2 (6-pin mini DIN) (Breakout cable to 2 PS/2 connectors is included.)
USB standards .....	USB 2.0, low speed

## General

Power supply.....	Internal Input: 100-240 VAC, 50-60 Hz
Power consumption .....	300-500 watts (varies with configuration)
Temperature/humidity .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 85%, noncondensing Operating: +35 to +95 °F (5 to +35 °C) / 10% to 85%, noncondensing
Cooling.....	Fans, front to rear
Thermal dissipation .....	300-900 BTU/hr (varies with configuration)
Mounting	
Rack mount.....	Yes
Enclosure type.....	Metal
Enclosure dimensions .....	7.0" H x 17.1" W x 19.3" D (4U high, full rack wide) (17.8 cm H x 43.3 cm W x 49.0 cm D) (Depth excludes connectors and handles. Width excludes built-in rack ears.)
Product weight.....	Without boards: 36 lbs (16.3 kg) Fully loaded: 41.5 lbs (18.8 kg)
Shipping weight.....	Without boards: 47 lbs (21 kg) Fully loaded: 53 lbs (24 kg)
Vibration .....	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety .....	CE, c-UL, UL
EMI/EMC .....	CE, FCC Class A
Environmental.....	Complies with the appropriate requirements of RoHS, WEEE.
Warranty.....	3 years parts and labor

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

**NOTE:** Specifications are subject to change without notice.

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