

# Specifications — MVX VGA A Series

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## Video

### Routing

MVX 44 VGA A.....	4 x 4 matrix
MVX 48 VGA A.....	4 x 8 matrix
MVX 84 VGA A.....	8 x 4 matrix
MVX 88 VGA A.....	8 x 8 matrix
MVX 128 VGA A.....	12 x 8 matrix
MVX 1212 VGA A.....	12 x 12 matrix
MVX 168 VGA A.....	16 x 8 matrix
MVX 1616 VGA A.....	16 x 16 matrix

Gain..... Unity

### Bandwidth

44-128 models .....	350 MHz (-3 dB), fully loaded
1212-1616 models .....	500 MHz (-3 dB), fully loaded
0 - 10 MHz .....	No more than +0.14 dB to -0.1 dB
0 - 130 MHz .....	No more than +0.95 dB to -0.8 dB

### Crosstalk

44-88 models .....	<-60 dB nominal @ 10 MHz, <-39 dB @ 100 MHz
128 model .....	-80 dB @ 1 MHz, -55 dB @ 10 MHz, -37 dB @ 100 MHz
1212/168/1616 Series .....	-90 dB @ 1 MHz, 78 dB @ 5 MHz, -70 dB @ 10 MHz, -60dB @ 30 MHz, -52 dB @ 100 MHz

### Switching speed

44-88 models .....	20 ms (max.)
128-1616 models .....	200 ns (max.)

## Video input

Number/signal type..... VGA-UXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video (bi-level and tri-level sync), S-video, composite video

44/48 models .....	4
84/88 models .....	8
128/1212 models .....	12
168/1616 models .....	16

### Connectors

44/48 models .....	4 female 15-pin HD
84/88 models .....	8 female 15-pin HD
128/1212 Series.....	12 female 15-pin HD
168/1616 Series.....	16 female 15-pin HD

Nominal level ..... 1 Vp-p for Y of component video and S-video, and for composite video  
0.7 Vp-p for RGB and for R-Y and B-Y of component video  
0.3 Vp-p for C of S-video

### Minimum/maximum levels

44-128 models .....	Analog: 0.3 V to 2.0 Vp-p with no offset at unity gain
1212-1616 models .....	Analog: 0.5 V to 2.0 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

### DC offset (max. allowable)

44-128 models .....	1.5 V
1212-1616 models .....	±1.4 mV

# Specifications — MVX VGA A Series, cont'd

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## Video output

Number/signal type.....	VGA-UXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV, component video (bi-level and tri-level sync), S-video, composite video
44/84 models .....	4
48/88/128/168 models ....	8
1212 model .....	12
1616 model .....	16
Connectors	
44/84 models .....	4 female 15-pin HD
48/88/128/168 models ....	8 female 15-pin HD
1212 model .....	12 female 15-pin HD
1616 model .....	16 female 15-pin HD
Nominal level .....	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels	
44-128 models .....	0.3 V to 2.0 Vp-p (follows input)
1212-1616 models .....	0 V to 2.0 Vp-p (follows input)
Impedance.....	75 ohms
Return loss.....	<-40 dB @ 5 MHz
DC offset (max. allowable)	
44-88 models .....	<20 mV with input at 0 offset
128 model .....	±5 mV with input at 0 offset
1212-1616 models .....	±10 mV with input at 0 offset
Switching type.....	Triple-Action™

## Sync

Input type.....	RGBHV, RGBS, RGsB, RsGsBs
Output type.....	RGBHV, RGBS, RGsB, RsGsBs (follows input)
Standards.....	Computer scan rates and also NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level .....	0.5 V to 5.0 Vp-p
Output level .....	AGC to TTL: 4.0 V to 5.0 Vp-p, unterminated
Input impedance .....	510 ohms
Output impedance	
44-128 models .....	75 ohms
1212-1616 models .....	Inputs 1 to 8: 75 or 50 ohms, switchable Inputs 9 to 12 or 16: 75 ohms
Max. propagation delay	
44-88 models .....	Horizontal: 90 ns nominal Vertical: 160 ns nominal
128 model .....	30 ns nominal
1212-1616 models .....	<120 ns
Max. rise/fall time	
44-128 models .....	4 ns
1212-1616 models .....	11.5 ns
Polarity.....	Positive or negative (follows input)

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## Audio

### Routing

MVX 44 VGA A.....	4 x 4 stereo matrix
MVX 48 VGA A.....	4 x 8 stereo matrix
MVX 84 VGA A.....	8 x 4 stereo matrix
MVX 88 VGA A.....	8 x 8 stereo matrix
MVX 128 VGA A.....	12 x 8 stereo matrix
MVX 1212 VGA A.....	12 x 12 stereo matrix
MVX 168 VGA A.....	16 x 8 stereo matrix
MVX 1616 VGA A.....	16 x 16 stereo matrix

### Gain

44-88 models .....	Adjustable
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**NOTE** *At default (when input gain is set to 0 dB and output level is set to "Pro"), overall gain is 12 dB for balanced output. The gain range is -6 dB to +22 dB for balanced output when the output level is set to "Pro".*

128-1616 models .....	Unbalanced output: -6 dB Balanced output: 0 dB
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### Frequency response

44-128 models .....	20 Hz to 20 kHz, $\pm 0.2$ dB
1212-1616 models .....	20 Hz to 20 kHz, $\pm 0.05$ dB

### THD + Noise

44-128 models .....	0.05% @ 1 kHz, 0.3 % @ 20 kHz at nominal level
1212-1616 models .....	0.03% @ 1 kHz at nominal level

### S/N

44-128 models .....	>90 dB, balanced, at maximum output (unweighted)
1212-1616 models .....	>100 dB, balanced, at maximum output (21 dBu) (unweighted)

### Crosstalk

44-128 models .....	<-65 dB @ 20 kHz, <-80 dB @ 1 kHz (fully loaded) or below 60 Hz
1212-1616 models .....	<-90 dB @ 1 kHz, fully loaded

### Stereo channel separation

44-128 models .....	>80 dB @ 1 kHz, >55 dB @ 20 Hz to 20 kHz (average for range)
1212-1616 models .....	>103 dB @ 1 kHz

### CMRR

44-128 models .....	>75 dB @ 20 Hz to 20 kHz
1212-1616 models .....	>85 dB @ 20 Hz to 20 kHz

## Audio input

### Number/signal type

44/48 models .....	4 stereo, unbalanced
84/88 models .....	8 stereo, unbalanced
128/1212 models .....	12 stereo, balanced/unbalanced
168/1616 models .....	16 stereo, balanced/unbalanced

### Connectors

44/48 models .....	4 female 3.5 mm stereo mini jacks: tip (L), ring (R), sleeve (GND)
84/88 models .....	8 female 3.5 mm stereo mini jacks: tip (L), ring (R), sleeve (GND)
128/1212 models .....	(12) 3.5 mm captive screw connectors, 5 pole
168/1616 models .....	(16) 3.5 mm captive screw connectors, 5 pole

### Impedance

44-88 models .....	>18k ohms unbalanced, DC coupled
128-1616 models .....	>10k ohms unbalanced/balanced, DC coupled

# Specifications — MVX VGA A Series, cont'd

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Nominal level

- 44-88 models ..... -10 dBV (316 mV) (default)  
Also compatible with +4 dBu (1.23 V), 0 dBu (0.775V), -20 dBV (100 mV)
- 128-1616 models ..... -10 dBV (316 mVrms), 0 dBu (775 mV)

Maximum level

- 44-88 models ..... >+12 dBV (4 V), (unbalanced) at 1% THD+N
- 128-1616 models ..... +19.5 dBu, (balanced or unbalanced) at 0.01% THD+N

Input gain

- 44-88 models ..... -18 dB to +10 dB, default = 0 dB  
Adjustable per input.

**NOTE** This is referenced to the internal bus signal level. It can be verified by measuring the unbalanced output when the output level is set to "Consumer".

- 128-1616 models ..... -18 dB to +24 dB (default = 0 dB)  
Adjustable per input by RS-232/422 or front panel

**NOTE** 0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

## Audio output

- Output gain..... 44-128 models only: 0 dB unbalanced (consumer) or +12 dB balanced (pro), selectable  
Default = +12 dB, balanced, when output level is set to "Pro"

Number/signal type

- 44/84 models ..... 4 stereo, balanced/unbalanced
- 88/128/168 models..... 8 stereo, balanced/unbalanced
- 1212 model ..... 12 stereo, balanced/unbalanced
- 1616 model ..... 16 stereo, balanced/unbalanced

Connectors

- 44/84 models ..... (4) 3.5 mm captive screw connectors, 5 pole
- 48/88/128/168 models .... (8) 3.5 mm captive screw connectors, 5 pole
- 1212 model ..... (12) 3.5 mm captive screw connectors, 5 pole
- 1616 model ..... (16) 3.5 mm captive screw connectors, 5 pole

Impedance..... 50 ohms unbalanced, 100 ohms balanced

Gain error ..... ±0.1 dB channel to channel

Nominal level (output volume range)

- 44-88 models ..... +4 dBu (1.23 V) (default) balanced, or  
-10 dBV (316 mV) unbalanced
- 128-1616 models ..... 0 to 64 (-75.8 dB to 0 dB)  
Adjustable in 1 dB increments from steps 1 to 64, 12 dB increment from step 0 to 1; default = 64 = 0 dB

Maximum level (Hi-Z)

- 44-88 models ..... >+22 dBu, balanced; >+14 dBV, unbalanced at 1% THD+N
- 128-1616 models ..... >+21 dBu, balanced or unbalanced, at 0.1% THD+N

Maximum level (600 ohm)

- 44-88 models ..... >+20 dBu, balanced; >+12 dBV unbalanced at 1% THD+N at default settings
- 128-1616 models ..... >+15 dBm, balanced or unbalanced, at 0.1% THD+N at default settings

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## Control/remote — switcher

### Serial control port

44-88 models .....	1 RS-232, 9-pin female D connector
128 model .....	1 RS-232 or RS-422, female 9-pin D connector
1212-1616 models .....	1 bidirectional RS-232 or RS-422, rear panel female 9-pin D connector 1 bidirectional RS-232, front panel 2.5 mm mini stereo jack

### Baud rate and protocol

44-88 models .....	9600 baud, 8-bit, 1 stop bit, no parity
128-1616 models .....	9600 (default), 19200, 38400, 115200 baud (adjustable); 8 data bits, 1 stop bit, no parity

### Control pin configuration

44-88 models .....	2 = TX, 3 = RX, 5 = GND, 9 = hardwired IR input
128 model	
RS-232 .....	2 = TX, 3 = RX, 5 = GND
RS-422 .....	2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = Tx+
1212-1616 models	
RS-232 .....	9-pin female D connector: 2 = TX, 3 = RX, 5 = GND Mini stereo jack: tip = TX, ring = RX, sleeve = GND
RS-422 .....	9-pin female D connector: 2 = TX-, 3 = RX-, 5 = GND, 7 = RX+, 8 = Tx+

### IR controller module

44-88 models .....	IR 501 (optional)
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Program control.....	Extron control/configuration program for Windows® Extron Simple Instruction Set (SIS™)
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## General

Power .....	100 VAC to 240 VAC, 50-60 Hz, internal
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44-128 models .....	30 watts
1212-1616 models .....	48 watts

### Temperature/humidity

44-128 models .....	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
1212-1616 models .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +113 °F (0 to +45 °C) / 10% to 90%, noncondensing

### Cooling

44-88 models .....	Convection, vents on sides and top
128-1616 models .....	Convection, vents on right and left sides

### Mounting

44-128 models	
Rack mount .....	Yes, with included mounting kit
Furniture mount.....	Yes, with optional under-desk mounting kit

1212-1616 models	
Rack mount .....	Yes

Enclosure type .....	Metal
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## Specifications — MVX VGA A Series, cont'd

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### Enclosure dimensions

44-88 models .....	1.75" H x 17.4" W x 8.5" D (1U high, full rack wide) (4.4 cm H x 44.2 cm W x 21.6 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
128 model .....	3.5" H x 17.0" W x 9.4" D (2U high, full rack wide) (8.9 cm H x 43.2 cm W x 23.9 cm D) (Depth excludes connectors and knobs. Width excludes rack ears.)
1212-1616 models .....	5.25" H x 17.0" W x 9.4" D (3U high, full rack wide) (13.3 cm H x 43.2 cm W x 23.9 cm D) (Depth excludes connectors. Width excludes rack ears.)

### Product weight

44-88 models .....	7.0 lbs (3.2 kg)
128 model .....	9.4 lbs (4.3 kg)
1212-1616 models .....	14.4 lbs (6.5 kg)

### Shipping weight

44-88 models .....	10 lbs (5 kg)
128 model .....	15 lbs (7 kg)
1212-1616 models .....	21 lbs (10 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

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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