

MLS 406 Series

SIX INPUT MLS - MEDIALINK™ SWITCHERS

- Six inputs for composite video, S-video, computer-video, and audio
- 280 MHz (-3 dB) video bandwidth
- Integrated amplifier in select models:
 - Mono amp in MLS 406MA
 - Stereo amp in MLS 406SA
- Local monitor output
- Auxiliary/Mix audio input
- Triple-Action Switching™
- Front panel security lockout
- RS-232 controllable
- Rack-mountable



MLS 406
Six Input MediaLink Switcher
with Variable Preamp Audio Output



MLS 406MA
Six Input MediaLink Switcher
with Mono Audio Amplifier



MLS 406SA
Six Input MediaLink Switcher
with Stereo Audio Amplifier

The Extron MLS 406, MLS 406MA, and MLS 406SA MediaLink Switchers provide composite video, S-video, computer-video, and audio switching. With six inputs and a comprehensive feature set, these three switchers are economical and easy-to-use solutions for single-projector environments such as classrooms and conference rooms.



Extron® Electronics

www.extron.com

DESCRIPTION

The Extron **MLS 406**, **MLS 406MA**, and **MLS 406SA** MediaLink™ Switchers are simple-to-use, six input, multi-format active switchers. Designed as economical solutions for single-display classrooms and boardrooms, all three models provide composite video, S-video, computer-video, and audio switching.

MLS - MediaLink Switchers are designed to be used in conjunction with an MLC - MediaLink Controller to facilitate low-cost integration. They can also be used as stand-alone switchers.

Line Level Outputs

Each switcher includes two line level outputs, one fixed and one variable, that can be configured for mono or stereo output via RS-232.

Integrated Audio Amplifier

The MLS 406MA provides a 20 watt (rms) amplified mono audio output for a 4 or 8 ohm load or 70/100 volt distributed audio system.

The MLS 406SA provides 24 watts (2 x 12 watts, rms) into 4 ohm speakers and 16 watts (2 x 8 watts, rms) into 8 ohm speakers. Like the line level outputs, the integrated audio amplifier can be configured for default stereo or dual mono output via RS-232.



MLS 406MA
MediaLink Switcher
with integrated mono
amplifier

The MLS 406 switchers can be used as stand-alone switchers, or combined with an Extron MLC - MediaLink Controller to create an affordable system integration solution.



MLC 226 IP
MediaLink Controller

FEATURES

- **High bandwidth** – 280 MHz (-3 dB) RGB video bandwidth maintains signal integrity.
- **Video inputs** – Three female BNC connectors paired with three 4-pin mini DIN connectors for composite video or S-video; three female 15-pin HD connectors for computer-video, composite video, or S-video.
- **Versatile video outputs** – Two RGB outputs are provided. One is available on five BNC connectors and the other on a female 15-pin HD connector. The 15-pin HD can also be utilized as a buffered local monitor loop-through for the signal connected to input six.
- **Local monitor output** – 15-pin HD connector can function as an additional RGB output or as a local monitor output to enable preview monitor capability without the need for a distribution amplifier.
- **Audio inputs** – Six balanced/unbalanced stereo audio inputs on three pairs of female RCA connectors, two female 3.5 mm stereo mini jacks, and one captive screw connector.
- **Auxiliary/Mix audio input** – An additional input accepts mono line level audio signals for mixing with any of the six switchable inputs.
- **Balanced audio output** – Balanced or unbalanced audio is output on captive screw connectors. The two line level outputs, one fixed and one variable, can be set for mono or stereo via RS-232.
- **Integrated audio amplifier** – The MLS 406MA provides 20 watt (rms) amplified mono audio output on captive screw terminals for a 4 or 8 ohm load or 70/100 volt distributed audio system. The MLS 406SA provides 24 watts (2 x 12 watts rms) for 4 ohm speakers and 16 watts (2 x 8 watts rms) for 8 ohm speakers.
- **Volume control** – Is adjustable locally from the front panel or remotely when integrated with a MediaLink Controller or a third party RS-232 based control system.
- **Loudness control** – Boosts low and high frequencies to compensate for the normal decreased hearing ability of the human ear at low volume levels.
- **Triple-Action Switching™** – Blanks the screen during switching of RGB signals to eliminate visible switching transitions.
- **Front panel security lockout** – Allows security lockout of front panel buttons and/or volume adjustment.
- **Control options** – The MLS Series switchers are designed to work with a MediaLink Controller. They can also be controlled via the front panel or any third party RS-232 control system.
- **Rack-mountable** – Housed in 1U, full rack width metal enclosures.
- **Internal international power supply**

VIDEO	
Gain	Unity
Bandwidth.....	280 MHz (-3 dB)
Differential phase error	1.0° at 3.58 MHz and 4.43 MHz
Differential gain error.....	1.0% at 3.58 MHz and 4.43 MHz
Crosstalk.....	-68 dB @ 10 MHz, -39 dB @ 100MHz
Switching speed	5 ms (max.)

VIDEO INPUT AND LOOP-THROUGH	
Number/signal/connectors	3 RGBHV, RGBS, RGsB, RsGsBs on 15 Pin HD 1 RGBHV, RGBS, RGsB, RsGsBs local monitor loop-through on 15 Pin HD 3 S-video on 4-pin mini DIN 3 composite video on BNC
Nominal level	1 Vp-p for Y of S-video, and for composite video 0.7 Vp-p for RGB, 0.3 Vp-p for C of S-video
Impedance	75 ohms
Horizontal frequency.....	15 kHz to 145 kHz
Vertical frequency	30 Hz to 170 Hz
Return loss	
RGB.....	<-40 dB @ 5 MHz
S-video.....	<-25 dB, 0 to 10 MHz
Composite video.....	<-40 dB, 0 to 10 MHz

VIDEO OUTPUT	
Number/signal/connectors	1 RGBHV, RGBS, RGsB, RsGsBs on BNCs 1 S-video on BNCs 1 composite video on BNC
Nominal level	1 V p-p for Y of S-video, and for composite video 0.7 V p-p for RGB, 0.3 V p-p for C of S-video
Impedance	75 ohms
Return loss.....	<-40 dB @ 5 MHz
Switching type.....	Triple-Action (RGB delay)

SYNC	
Input/output type.....	RGBHV, RGBS, RGsB, RsGsBs (follows input)
Standards	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level.....	2.0 V to 5.0 V p-p
Output level.....	TTL: 5.0 V p-p, unterminated
Input impedance	10k ohms
Output impedance	75 ohms
Max input voltage	5.0 V p-p
Max. propagation delay.....	30 ns
Max. rise/fall time.....	4.0 ns
Polarity	Positive or negative (follows input)

AUDIO	
Gain	Unbal. output: 0 dB; bal. output: +6 dB
Frequency response	
Preamp/Lineout.....	20 Hz to 20 kHz, ±0.5 dB
Direct (4/8 ohm).....	20 Hz to 20 kHz, +0 dB/-0.5 dB @ 1 W
Transformer (70V mono amplifier).....	50 Hz to 20 kHz, +0 dB/-0.3 dB @ 1 W
Transformer (100V mono amplifier).....	50 Hz to 20 kHz, +0 dB/-3 dB @ 1 W
THD + Noise	
Power amp (mono or stereo).....	0.037% @ 1 kHz at nominal level (1 watt, 8 ohm load)
Preamp	0.11% @ 1 kHz at nominal level
Lineout.....	0.018% @ 1 kHz at nominal level
S/N at maximum power output (unweighted)	
Power amp.....	>75 dB @ 10 Hz to 22 kHz
Preamp/Lineout.....	>80 dB @ 10 Hz to 22 kHz
Crosstalk.....	<-80 dB @ 1 kHz, fully loaded
Stereo channel separation.....	>80 dB @ 1 kHz
CMRR.....	>75 dB @ 20 Hz to 20 kHz

AUDIO INPUT	
Number/signal/connectors	3 stereo, unbal. line level on RCA (input 1-3) 1 stereo, bal./unbal. line level on 3.5 mm captive screw (input 4) 2 stereo, unbal. line level on 3.5 mm TRS (input 5-6) 1 mono, bal./unbal. line level on 3.5 mm captive screw (aux/mix input)

Impedance	>10k ohms unbalanced, DC coupled
Nominal level	-10 dBV (316 mVrms)
Maximum level.....	+8 dBV (2.51 Vrms), unbalanced at <0.1%THD+N +10 dBu (2.45 Vrms), balanced at <0.1% THD+N
Input gain adjustment	-42 dB to +24 dB, adjustable per input
NOTE:	0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu

AUDIO OUTPUT — LINEOUT AND PREAMP	
Number/signal/connectors	1 stereo/mono, bal./unbal. fixed line level on 3.5 mm captive screw (line out) 1 stereo/mono, bal./unbal. variable level on 3.5 mm captive screw (pre-amp)
Impedance	50 ohms unbalanced, 100 ohms balanced
Nominal level	Configurable: -10 dBV (316 mVrms, default), +4 dBu (1.23 Vrms)
Maximum level (600 ohm)	
Power amp (mono or stereo).....	>+17 dBu, balanced <0.5% THD+N
Preamp	>+19 dBu, balanced <0.1% THD+N
Lineout.....	>+16 dBu, balanced <0.1% THD+N
NOTE:	Unbalanced wired outputs produce 6 dB of attenuation.

AUDIO OUTPUT — Mono Power Amp (MLS 406MA only)	
Number/signal type.....	1 mono on 5-position screw terminal
Sensitivity @ max power	-20 dBV (100 mVrms) (adjustable)
Power bandwidth	
Direct (4 ohm)	20 Hz to 20 kHz, 0.5% THD
Direct (8 ohm)	20 Hz to 20 kHz, 0.15% THD
Transformer (70V)	50 Hz to 20 kHz, 1% THD
Transformer (100V)	50 Hz to 20 kHz, 0.5% THD
Maximum power output	
Direct (4/8 ohm).....	20 watts max. (continuous)
Transformer (70/100V).....	16 watts max. (continuous), transformer coupled
Protection	Input limiting, thermal, short circuit

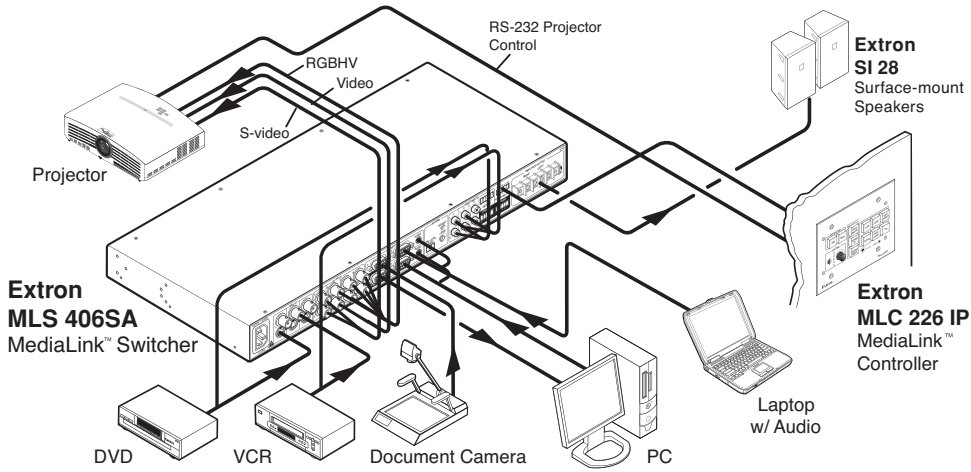
AUDIO OUTPUT — Stereo Power Amp (MLS 406SA only)	
Number/signal type.....	1 stereo (default) or dual mono (configured via software) on 5-position screw terminal
Sensitivity	-20 dBV (100 mVrms) (adjustable)
Power bandwidth at maximum power output	
Direct (4 ohm)	10 Hz to 20 kHz, 0.5% THD
Direct (8 ohm)	20 Hz to 20 kHz, 0.8% THD
Maximum power output	
Direct (4 ohm)	24 watts max. 12 watts, rms, per channel
Direct (8 ohm)	16 watts max. 8 watts, rms, per channel
Protection.....	Input limiting, thermal, short circuit

CONTROL/REMOTE — SWITCHER	
Serial control port	RS-232, 3.5 mm captive screw connector, 5 pole (uses 3 poles)
Program control	Extron's configuration program for Windows® Extron's Simple Instruction Set (SIS)™

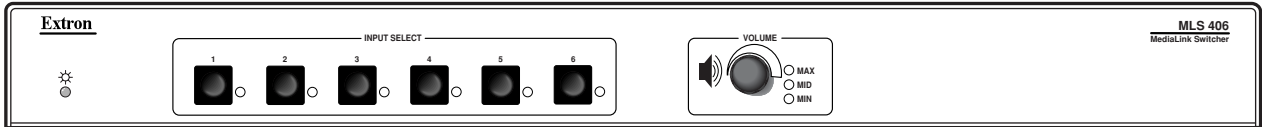
GENERAL		
Power	100 VAC to 240 VAC, 50/60 Hz, 60 watts, internal, autoswitchable	
Rack mount	Yes, with included brackets (#70-077-03)	
Metal enclosure dimensions.....	1.75" H x 17.5" W x 8.5" D (4.4 cm H x 44.4 cm W x 21.6 cm D)	
Product weight		
MLS 406	5.0 lbs (2.3 kg)	
Amplified models	6.0 lbs (2.7 kg)	
Shipping weight		
MLS 406	10 lbs (5 kg)	
Amplified models	11 lbs (5 kg)	
Listings	UL, CUL	
Compliances.....	CE, FCC Class A, VCCI, AS/NZS, ICES	
NOTE:	All nominal levels are at ±10%.	
Model	Version Description	Part Number
MLS 406	Variable preamp audio output.....	60-560-01
MLS 406MA	Mono Audio amplifier	60-560-02
MLS 406SA	Stereo audio amplifier	60-560-03

Specifications are subject to change without notice.

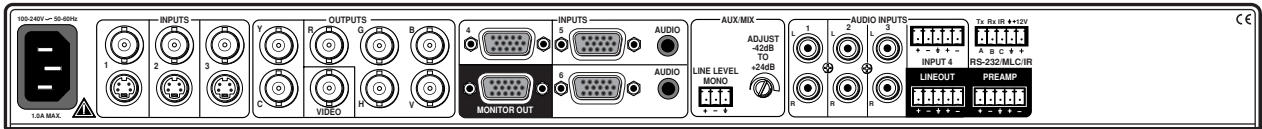
APPLICATION DIAGRAMS



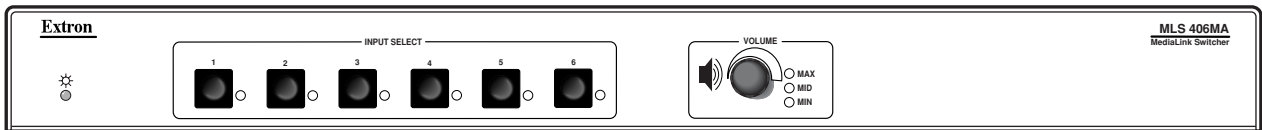
PANEL DRAWINGS



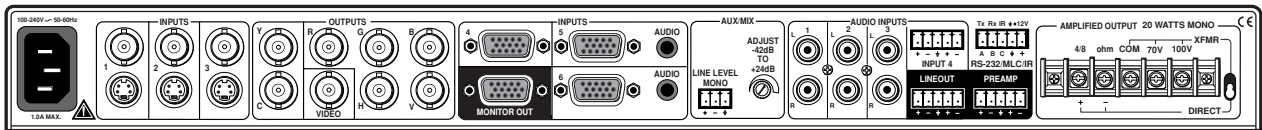
MLS 406 – Front



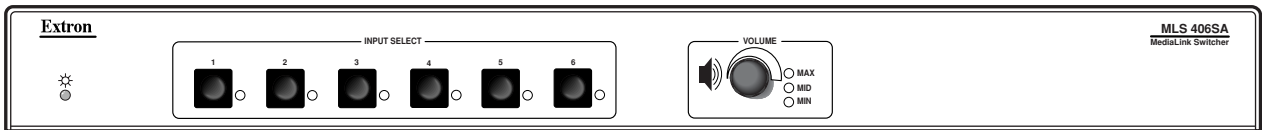
MLS 406 – Back



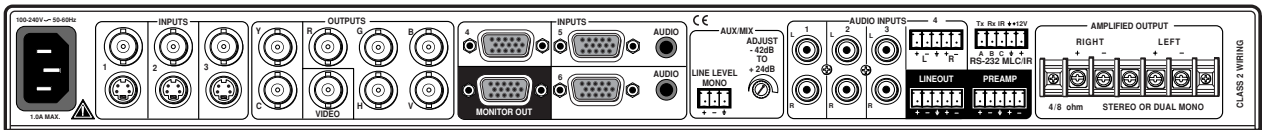
MLS 406MA – Front



MLS 406MA – Back



MLS 406SA – Front



MLS 406SA – Back



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