Digital Multi Switcher with Integrated Audio Power Amplifier

MSD-701AMP

The MSD-701AMP is a seven-input digital presentation switcher with built-in audio power amplifier.
The seven digital and two analog inputs accept a wide variety of video formats including HDMI, DVI, HDBaseT, Composite video, RGB, and YPbPr. Input video signals are converted to HDBaseT and HDMI signals at up to QWXGA or 1080p. Two selected input video signals can be displayed on a single screen in picture-in-picture or side-by-side layout.

Up to three audio can be mixed: one of digital audio/analog audio, one mic, and one line. Audio is output to digital connectors, an analog connector, and two speakers. Enhanced audio features include compressing, limiter, and seven-band equalizer for mic input and tone controls for speaker output.

The MSD-701AMP can be configured remotely from RS-232C and LAN. External devices can be controlled via RS-232C, LAN, CEC, or contact closure by registering control commands.

Additionally, the MSD-701AMP includes key security lockout and button caps to prevent accidental or inappropriate changes.

■ Specification

Item				Description
Input	Video	HDMI/DVI		7 inputs Switch-selectable between HDBaseT and HDMI/DVI (IN5 only) DVI connectors: Switch-selectable between digital and analog HDMI Deep Color (*1)/DVI 1.0 TMDS single link, HDCP 1.4 TMDS clock: 25 MHz to 225 MHz, TMDS data rate: 0.75 Gbps to 6.75 Gbps Built-in cable EQ, EDID emulation, CEC (HDMI connector only) Connector: 5 female HDMI Type A (19-pin), 2 female DVI-I (29-pin)
		HDBaseT		1 input Switch-selectable between HDBaseT and HDMI/DVI (IN5 only) HDBaseT (*1) HDCP 1.4 EDID emulation, RS-232C, LAN, CEC, PoH power supply (IEEE 802.3af) Connector: RJ-45 (*2) Cable: CAT.5E HDC, Cat5e UTP/STP, Cat6 UTP/STP (T568A/T568B straight-through) For PoH power feeding, please use a 24 AWG category cable or thicker cable.
		Universal Analog		2 inputs Switch-selectable between digital and analog Composite video/ Y/C/Analog RGB/Analog YPbPr (Auto-recognition) Composite video : 1.0 V[p-p]/75 Ω Y/C : 1.0 V[p-p](Y)/0.286 V[p-p](C)/75 Ω Analog RGB : 0.7 V[p-p](1.0 V[p-p] Sync on Green)/75 Ω HS/VS TTL level, CS TTL level, Sync on Green Analog YPbPr : 1.0 V[p-p](Y)/0.7 V[p-p](Pb/Pr)/75 Ω EDID emulation Connector: 2 female DVI-I (29-pin)
		Format	HDMI/DVI/ HDBaseT	VGA to QWXGA (Dot clock: 25 MHz to 165 MHz) For WUXGA/QWXGA, only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
			Universal Analog	VGA to QWXGA (Dot clock: 25 MHz to 165 MHz) For WUXGA/QWXGA, only Reduced Blanking is supported. NTSC / PAL 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
	Audio	Digital		7 inputs Switch-selectable between HDBaseT and HDMI/DVI (IN5 only) Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit Reference level: -20 dBFS, Max. input level: 0 dBFS Connector: 5 female HDMI Type A (19-pin), 1 RJ-45, 2 female DVI-I (29-pin)
		Analog		3 inputs Balanced/Unbalanced Stereo LR Input impedance: 48 kΩ balanced/24 kΩ unbalanced Reference level: -10 dBu, Max. input level: +10 dBu Connector: 3 captive screw (5-pin)
		Line		1 input Balanced/Unbalanced Stereo LR Input impedance: 48 kΩ balanced/24 kΩ unbalanced Reference level: 0 dBu to -40 dBu, Max. input level: +10 dBu Connector: Captive screw (5-pin)
		Mic		1 input Balanced/Unbalanced Mono Input impedance: 10 kΩ or more Reference level: 0 dBu to -60 dBu, Max. input level: +10 dBu Connector: Captive screw (3-pin)

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Item			Description
Output	Video	HDMI/DVI	2 outputs Video can be distributed to HDMI/DVI outputs and an HDBaseT output simultaneously. HDMI Deep Color (*1)/DVI 1.0 TMDS single link, HDCP 1.4 TMDS clock: 27 MHz to 202.5 MHz, TMDS data rate: 0.81 Gbps to 6.075 Gbps Built-in cable EQ, CEC Connector: 2 female HDMI Type A (19-pin)
		HDBaseT	1 output Video can be distributed to HDMI/DVI outputs and an HDBaseT output simultaneously. HDBaseT (*1) HDCP 1.4 RS-232C, LAN, CEC Connector: RJ-45 (*2) Cable: CAT.5E HDC, Cat5e UTP/STP, Cat6 UTP/STP (T568A/T568B straight-through)
		Format	VGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESAHD / WUXGA / QWXGA For VESAHD/WUXGA/QWXGA, only Reduced Blanking is supported. 480p /576p / 720p / 1080i / 1080p
	Audio	Digital	3 outputs Audio can be distributed to HDMI/DVI outputs and an HDBaseT output simultaneously Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit Reference level: -20 dBFS, Max. output level: 0 dBFS Connector: 2 female HDMI Type A (19-pin), RJ-45
		Analog	1 output Balanced/Unbalanced Stereo LR Output impedance: 100 Ω balanced/50 Ω unbalanced Reference level: -10 dBu, Max. output level: +10 dBu Connector: Captive screw (5-pin)
		Speaker output 1	1 output Stereo LR Load impedance: 4 Ω to 16 Ω, 100 W + 100 W (4 Ω 1 kHz) Connector: Captive screw (4-pin) (5.08 mm)
		Speaker output 2	1 output Switch-selectable between Stereo LR and Mono (High-impedance output) [Stereo LR] Load impedance: 4 Ω to 16 Ω, 100 W + 100 W (4 Ω 1 kHz) Connector: Captive screw (4-pin) (5.08 mm) [Mono] High-impedance output Load impedance: 200 Ω to 10 kΩ, 50 W (200 Ω 100 V line) Connector: Captive screw (2-pin) (5.08 mm)
Maximum transmission distances		Digital input	HDMI/DVI : 98 ft. (30 m) (*3) HDBaseT : 328 ft. (100 m), 492 ft. (150 m) (Long reach mode is used) (*4)
		Digital output	HDMI/DVI : 164 ft. (50 m) (*3) HDBaseT : 328 ft. (100 m), 492 ft. (150 m) (Long reach mode is used) (*4)
Control		RS-232C	2 ports/captive screw (3-pin)
		LAN	1 port/RJ-45 10Base-T/100Base-TX (Auto Negotiation), Auto MDI/MDI-X
		Contact closure	6 ports/captive screw (6-pin) Non-voltage contact input up to DC 24 V 1 A
		Remote control	Remote IN 1 : Open-circuit voltage DC 5 V, short-circuit current 0.5 mA, external button switch Remote IN 2 : Voltage detection DC 5 V to DC 30 V, Receiving emergency stop signal Remote OUT: Non-voltage contact N.C./N.O., input up to DC 24 V 1 A, power distribution unit control Connector: Captive screw (8-pin)
		External control	RS-232C, LAN, HDBaseT, Contact closure, PJLink (class1), CEC (Power control of sink device) (*10)
Functions		Video	Motion adaptive interlaced/progressive conversion, Aspect ratio control, Picture adjustment (brightness, contrast, image position, image size, etc.), Seamless Switching, Two video combinations: PinP and side-by-side, Pattern memory (5 settings), Each video output OFF
		Audio	Input level offset control, Output level control, Mic/Line level control, Source volume control, Lip Sync (Max. 256 ms.), Audio Downmix, Audio mixing, Compressor, Limiter, 7-band equalizer, Tone control, Automatic feedback suppressor
		Others	WEB browser control, Input channel automatic switching, Audio breakaway for independent audio and video switching, Crosspoint memory (9 settings), Preset memory (8 settings), Last memory, Anti-Snow, Connection Reset (*6), External control commands (32 commands), Button security lockout, System check, Standby switch
General		Power	100 - 240 VAC ± 10%, 50 Hz/60 Hz ± 3 Hz
		Power consumption	About 108 Watts (1/8 MAX power)
		Dimensions	16.9 × 3.5 × 13.8" (430 (W) × 88 (H) × 350 (D) mm) (2U high) (Excluding connectors and the like)
		Weight	17 lbs. (7.7 kg)
		Temperature	Operating: 32°F to 104°F (0°C to +40°C) Storage : -4°F to +176°F (-20°C to +80°C)
		Humidity	Operating/Storage: 20% to 90% (Non Condensing)

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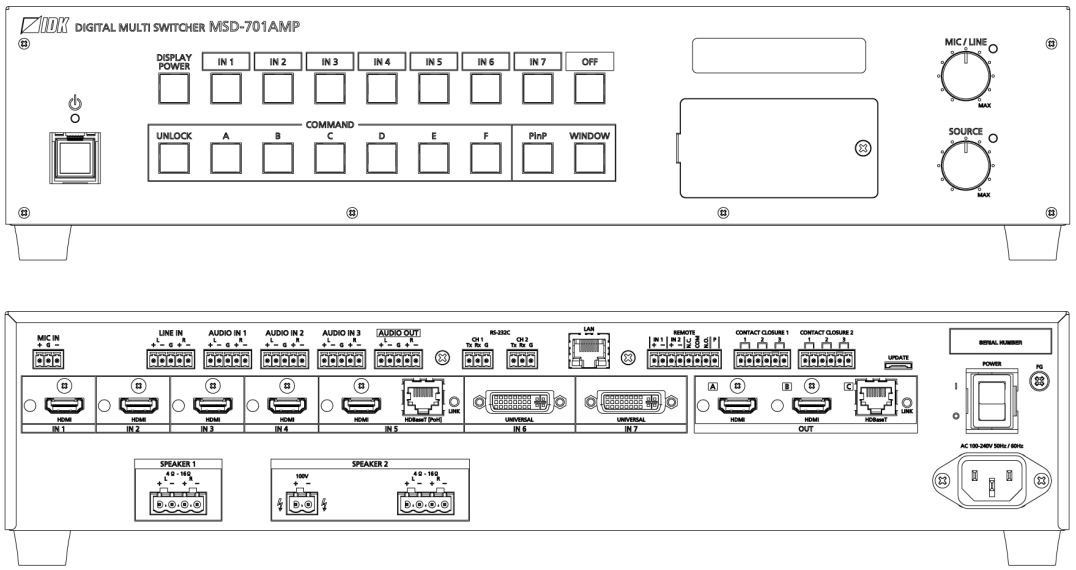
*1 30 bit/pixel (10 bit/component) Deep Color is supported while x.v.Color, 3D, ARC, HEC, and HDR are not supported.
*2 RJ-45 (HDBaseT connector) is only for extending digital video and audio signals over a Cat5e/Cat6 cable. Use it with IDK's HDBaseT Products. Do not use for LAN devices.
*3 The maximum cable distance varies depending on the connected devices and was measured under following conditions:
・1080p@60: When IDK's 24 AWG cable was used and signals of 1080p@60 24 bit/pixel (8 bit/component) was input or output.
The maximum cable distance depends on the connected devices. The distance may not be extended with some device combinations, cabling method, or other manufacturer's cable. Video may be disturbed or may not be output even if signals are within the range mentioned above.
*4 The maximum transmission distance was obtained when IDK's CAT.5E HDC cable was used. The distance may not be extended with some device combinations, cabling method, or other manufacturer's cable. Video may be disturbed or may not be output even if signals are within the range mentioned above.
The maximum transmission distance is the shorter distance of connected HDBaseT product or sink device's maximum transmission distance.
Up to 492 ft. (150 m): 1080p (24 bit) in Long reach mode. For Long reach mode, use IDK's HDBaseT Products that supports 328 ft. (100 m) or longer.
*5 The sink device must support CEC. Some sink devices cannot be controlled from the MSD through CEC.
*6 For digital systems, some problems, such as an HDCP authentication error, can often be recovered by physically disconnecting and reconnecting the digital cables. However, the Connection Reset feature will fix these problems automatically without the need to physically plug and unplug the cables. It creates the same condition as if the cable were physically disconnected and reconnected. This feature only works for the MSD's output. If other devices are connected between the MSD's output and sink device, this feature may be invalid.

■ Front & Rear Panels



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[Features]

■ Video

- Up to 1080p/QWXGA (Reduced Blanking)
- Motion adaptive interlaced/progressive conversion
- Two video combinations: PinP and side-by-side
- Scan conversion
- Aspect ratio control
- Seamless switching with one black frame
- Analog/Digital conversion
- Each video output OFF
- Anti-snow
- Up to 492 ft. (150 m) over Cat6 cable in Long reach mode[*1]

■ Audio

- Embedding/De-embedding
- Volume adjustment (Input/Output)
- Mic/Line level control
- Source volume control
- Lip Sync
- Audio Downmix
- Sampling rate conversion
- Audio mixing
- Compressor
- Limiter
- 7-band equalizer
- Tone control
- Automatic feedback suppressor
- High-impedance speaker output

■ Control input

- RS-232C
- LAN
- External button switch

■ Control output

- Control command output (e.g. controlling projectors)
- PJLink
- CEC (Control sink device power)
- Contact closure
- Power distribution unit control

■ Others

- PoH (HDBaseT input)
- EDID emulation
- WEB browser control
- Input channel automatic switching
- Audio breakaway for independent audio and video switching
- Crosspoint memory
- Preset memory
- Last memory
- Connection Reset
- Button security lockout
- System check
- HDBaseT: RS-232C, LAN and CEC are supported
- Standby switch

[*1] For long reach mode, video signals up to 1080p (24 bit) can be transmitted to 492 ft. (150 m) at maximum if using with IDK's HDBaseT products supporting 328 ft. (100 m) transmission.

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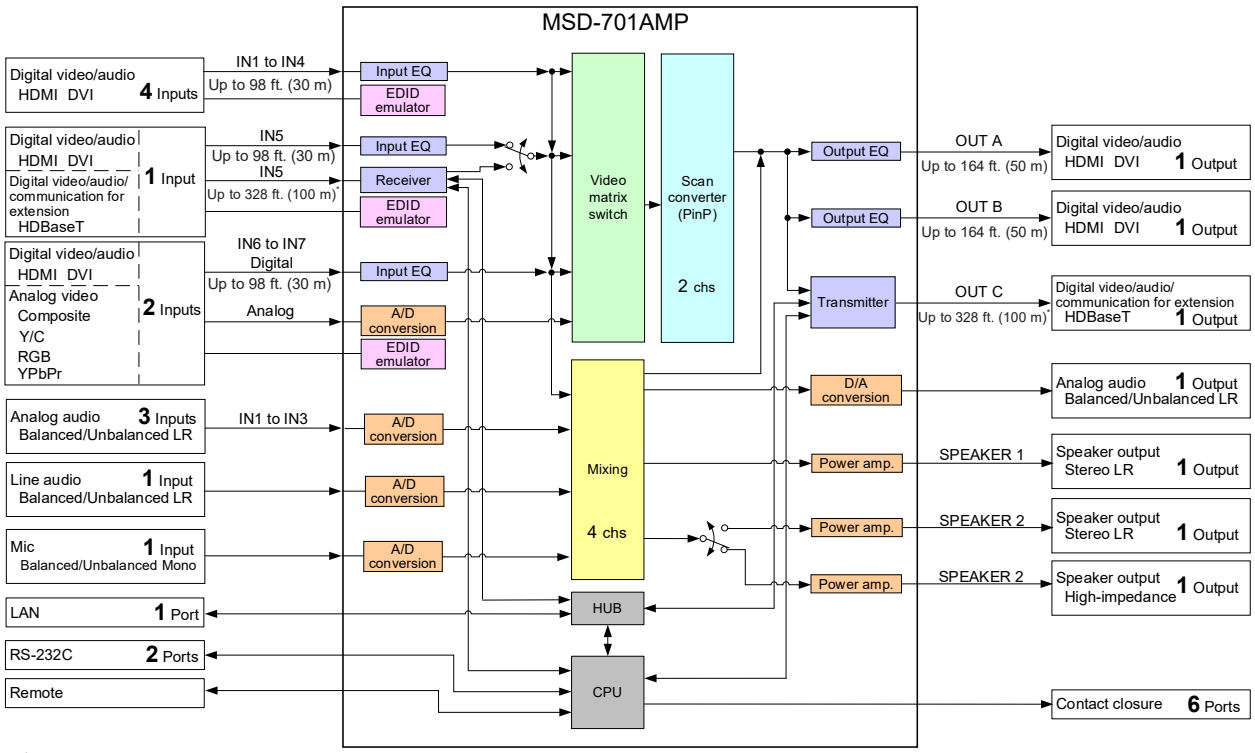
■ Diagram



* Maximum transmission distances
Up to 328 ft. (100 m) : QWXGA, 1080p
Up to 492 ft. (150 m) : 1080p (24 bit) in Long reach mode
For long reach mode, video signals up to 1080p (24 bit) can be transmitted to 492 ft. (150 m) at maximum if using with IDK's HDBaseT products supporting 328 ft. (100 m) transmission.

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