



## MSD-702

The IDK MSD-702 is a high-performance digital multi switcher with a scan converter and up to 7 inputs and 2 outputs. Video signals HDMI, DVI, Composite Video, S-Video, Analog RGB, and Analog YPbPr can be input and converted up to QWXGA or 1080p. An HDMI output and an HDBaseT output that can output simultaneously, and the MSD-702 has two pairs of this simultaneous output unit. The MSD-702 also has 5 digital and 7 analog audio inputs. Audio signals of IN1 to IN5 are switch-selectable between digital audio (HDMI) and analog audio (RCA), and audio output is simultaneous output both digital and analog output. Sound level of input and output can be set respectively. Gaps between video and audio can be compensated by Lip Sync. Front Panel VFD Menu is a useful for checking input and output signal status on the switcher and set or changes the settings of the switcher to support AV systems in a field. The MSD-702 also has other features such as built-in scan converter, Seamless Switching, and Aspect Ratio Control for complete AV switching and distribution.

### ■Specification

		Item	Description	
Input	Video	HDMI / DVI	Number / Signal	5 inputs / HDMI Deep Color (*1) / DVI 1.0 / HDCP1.4 - TMDs single link - TMDs clock: 25 MHz to 225 MHz - Dot clock: 25 MHz to 165 MHz
			Connector	4 female HDMI Type A (19-pin) 1 female Universal DVI-I (29-pin) * DVI-I connector is selectable between digital (HDMI/DVI) and analog input
			Others	Built-in Digital Cable EQ, EDID emulation
		Universal Analog	Number / Signal	2 inputs / Composite video, S-Video, Analog RGB / Analog YPbPr (auto-recognition) - Composite video (VBS Signal): 1.0 V [p-p] / 75 Ω - S-Video (Y/C Signal): 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
			Connector	2 female 15-pin HD
			Others	EDID emulation
	Format		NTSC / PAL 480i / 480p / 576i / 576p / 720p / 1080i / 1080p VGA to QWXGA * WUXGA / QWXGA are supported only with Reduced Blanking	
	Audio	Digital	Number / Signal	5 inputs / 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 * IN1 to IN3 are switch-selectable between digital and analog audio
			Connector	4 female HDMI Type A (19-pin) 1 female Universal DVI-I (29-pin) * DVI-I connector is selectable between digital (HDMI/DVI) and analog input
		Analog	Number / Signal	7 inputs / Stereo LR unbalanced signal - Input impedance: 24 kΩ - Reference level: -10 dBu - Max input level: +10 dBu * IN1 to IN3 are switch-selectable between digital and analog audio
Connector			7 RCA pin jack	
Output	Video	HDMI / DVI	Number / Signal	2 outputs / HDMI Deep Color (*1) / DVI 1.0 / HDCP1.4 - TMDs single link - TMDs clock: 25 MHz to 225 MHz - Dot clock: 25 MHz to 165 MHz * The switcher can output both an HDMI output and an HDBaseT output simultaneously
			Connector	2 female HDMI Type A (19-pin)
			Others	Built-in Digital Cable EQ
		HDBaseT	Number / Signal	2 outputs (*2) / HDMI Deep Color (*1) / DVI 1.0 / HDCP1.4 - TMDs single link - TMDs clock: 25 MHz to 225 MHz - Dot clock: 25 MHz to 165 MHz * The switcher can output both an HDMI output and an HDBaseT output simultaneously
			Connector	2 RJ-45 (*3) / Cable: CAT.5E HDC, Cat5e UTP / STP, Cat6 UTP / STP (*4)
			Format	480i / 480p / 576i / 576p / 720p / 1080i / 1080p VGA / SVGA / XGA / WXGA (1280 x 768) / WXGA (1280 x 800) / Quad-VGA / SXGA / WXGA (1360 x 768) / WXGA (1366 x 768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESAHD / WUXGA / QWXGA * VESAHD / WUXGA / QWXGA are only output as Reduced Blanking
	Audio	Digital	Number / Signal	2 outputs / 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 *The switcher can output both an HDMI output and an HDBaseT output simultaneously
			Connector	2 female HDMI Type A (19-pin), 2 RJ-45
		Analog	Number / Signal	2 outputs / Stereo LR unbalanced signal Output impedance: 75 Ω Reference level: -10 dBu Max. output level: +10 dBu
			Connector	1 RCA pin jack
		Lip Sync		Up to 16 frames
		Maximum extension distance	Digital Input	98 ft. (30 m) (*5)
Digital Output	HDMI/DVI: 164 ft. (50 m) (*5), HDBaseT: 328 ft. (100 m) (*6)			

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Item		Description
Functions	Analog video processing unit	
	3D Y/C separation	
	Motion adaptive I/P conversion, Aspect Ratio Control, Picture adjustment (brightness, contrast, display position, display size), Seamless Switching (*7)	
Others	Volume adjustment (volume of input and output ports can be set separately), Lip Sync, Audio breakaway enables independent audio and video switching, Automatic input detection and switching, Cross-point memory (7 settings), Preset memory (8 settings and startup settings), Last memory, Anti-Snow (*8), Connection Reset (*9), External control commands (32 commands), Security lock	
	Connection Reset (*9), External control commands (32 commands), Security lock	
External control	Serial control port	Number / Signal
		Connector
	LAN control port	Number / Signal
		Connector
Command outputs to external device		RS-232C, LAN, CEC (controls power of display)(*10), PLink (class1)
Others	Power	
	100 - 240 VAC ± 10%, 50 Hz / 60 Hz ± 3 Hz	
	Power consumption	
	About 48 Watts	
	Dimensions	
	16.9 × 1.7 × 13.8" (430 (W) × 44(H) × 350 (D) mm) (EIA 1U high, full rack wide) (Excluding connectors and the like)	
Weight		
9.5 lbs. (4.3 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)		

(\*1) This product supports 30 bits/pixel Deep color (10 bit/component). It does not support x.v.Color, 3D, ARC, and HEC.

(\*2) Digital twisted pair output does not support DVI signals with HDCP. If you need to extend DVI signals with HDCP, please use The IDK HDC-RD100 as a receiver.

(\*3) Digital twisted pair output is only for extending video, audio, power for a receiver, control signals using a Cat5e/Cat6 twisted pair cable. IDK receivers are required. Please do not connect LAN devices to this connector.

(\*4) T568A or T568B straight. The CAT.5E HDC cable is developed by IDK and recommended by HDBaseT alliance.

(\*5) The maximum cable distance varies depending on the connected devices and was measured under following conditions:

- 1080p@60: when IDK's AWG 24 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.

(\*6) The maximum extension 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. Operations may not be stable with some LCD devices; please check the operation beforehand or contact us.

The maximum extension distance is the shorter distance of connected HDBaseT product or sink device's maximum extension distance

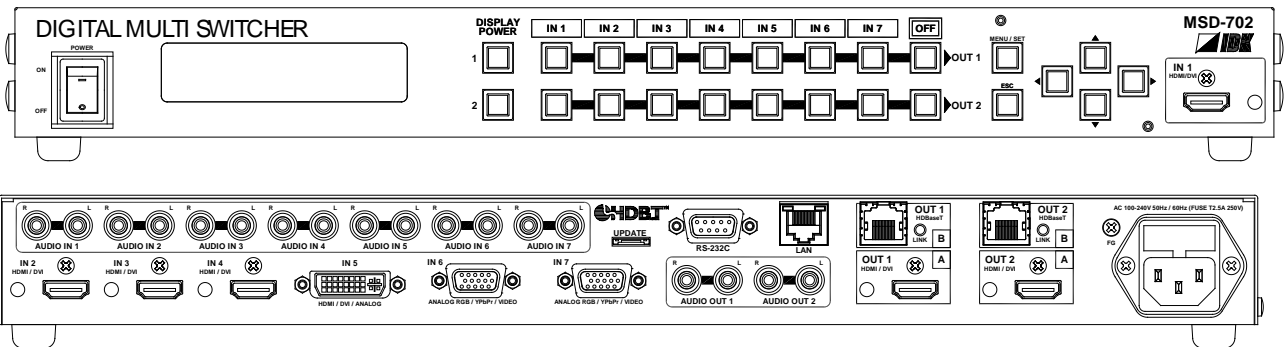
(\*7) Seamless Switching has one black frames or back color.

(\*8) The Anti-Snow function can automatically recover from snow-noise that is a specific symptom of digital signals having HDCP. Mainly, this snow-noise occurs during system startup. Therefore, this function does not work in case of snow-noise has already occurred before input the signal to IDK switchers or bad quality signal transmission.

(\*9) The Connection Reset function can fix these problems without physical cable manipulations. This function can work only in this product's output port, which sometimes will not take effect if another device is between output of this product and display device.

(\*10) Displays that are used with this product must support CEC. Some displays cannot be controlled by this product through CEC.

## ■ Front & Rear Panels

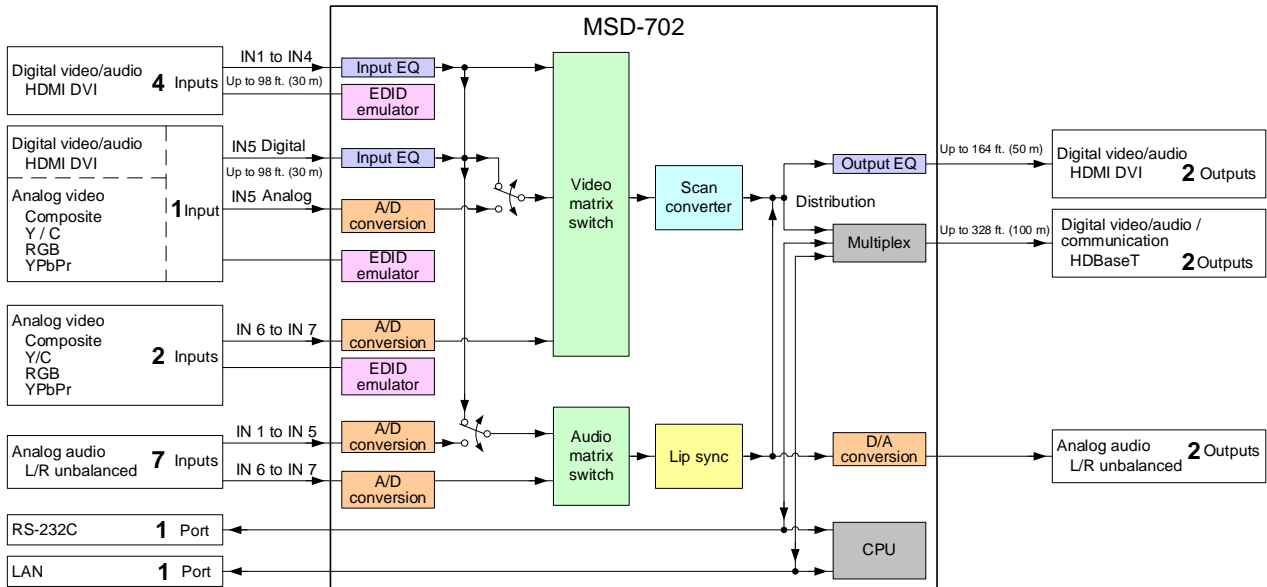


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# MSD-702 Diagram and Features

## ■ Diagram



## [Features]

### ■ Video

- Up to QWXGA (RB)<sup>1</sup> or 1080p
- Digital cable equalization
  - Input: up to 98 ft. (30 m)
  - Output: up to 164 ft. (50 m)
- Up to 328 ft. (100 m) over a Cat6 cable
- Motion adaptive I/P conversion
- Scan conversion
- Aspect ratio control
- Seamless switching<sup>\*2</sup>
- A/D conversion
- Anti-snow

### ■ Audio

- A/D, D/A conversion
- Volume adjustment
- Lip Sync

### ■ Control input

- RS-232C, LAN

### ■ Control output

- Control command output (controlling projector, etc.)
- PLink
- Power control of sink device over CEC

### ■ Others

- EDID emulation
- Audio breakaway enables independent audio and video switching
- Automatic input detection and switching
- Front panel HDMI input
- Cross point memory
- Preset memory
- Last memory
- Connection Reset
- Security lock

<sup>1</sup> (RB) = Reduced Blanking

<sup>2</sup> Seamless switching with a black frame.