



## MSD-402

MSD-402 (hereafter referred to as "the MSD") Presentation Switcher provides 4 inputs and 2 outputs and has a built-in scan converter. For video input, 2 HDBaseT and 2 HDMI/DVI are included. Input video signals are converted to HDMI/DVI signals and HDBaseT signals output at resolutions at up to QWXGA or 1080p. For audio input, 4 digital inputs are included. Selected audio signals are output to digital audio and analog audio. Audio levels of each input and output can be set individually. RS-232C and LAN are provided as communication ports for external control communication and web browser to enable you to set the MSD remotely. HDBaseT input/output supports bidirectional LAN communication.

Analog video signal can be input by using HDC-TH200 with the MSD, and the configuration enables remote input channel switching.

### ■ Specification

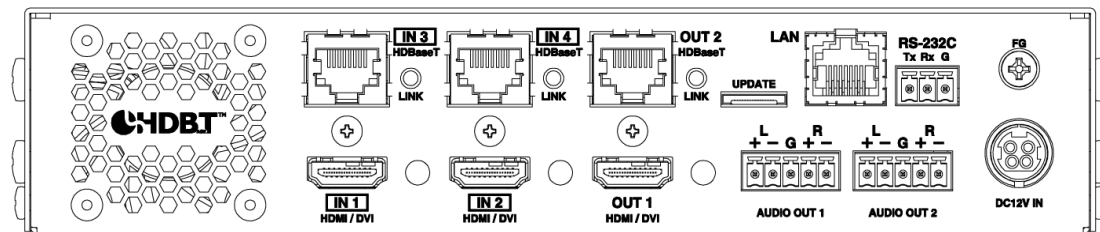
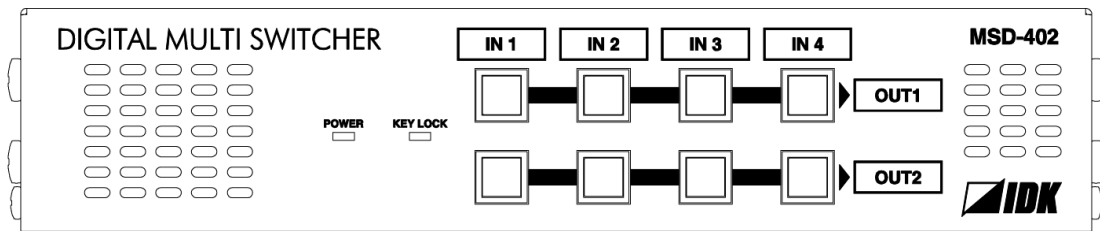
		Item		Description
Input	Video	HDMI / DVI	Number / Signal	2 inputs / HDMI Deep Color (*1) / DVI 1.0 - HDCP1.4 - TMDS single link - TMDS clock: 25 MHz to 225 MHz - Dot clock: 25 MHz to 165 MHz
			Connector	2 female HDMI Type A
			Others	Built-in Digital Cable EQ, EDID emulation
		HDBaseT	Number / Signal	2 inputs / HDBaseT - HDCP1.4 (*2) - TMDS single link - TMDS clock: 25 MHz to 225 MHz - Dot clock: 25 MHz to 165 MHz
			Connector	2 RJ-45 (*3) / Cable: Cat5e / Cat6 (STP/UTP straight cable) / CAT.5E HDC cable (*4)
			Format	480i / 480p / 576i / 576p / 720p / 1080i / 1080p VGA to QWXGA * WUXGA / QWXGA are supported only with Reduced Blanking
	Audio	Digital	Number / Signal	4 inputs / Multi-channel linear PCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample bit: 16 bit to 24 bit - Reference level: -20 dBFS - Max. input level: 0 dBFS
			Connector	2 female HDMI Type A 2 RJ-45 (*3)
Output	Video	HDMI / DVI	Number / Signal	1 output / 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	1 female HDMI Type A
			HDBaseT	Number / Signal
		Connector		1 RJ-45 (*3) / Cable: Cat5e / Cat6 (STP/UTP straight cable) / CAT.5E HDC cable (*4)
		Format		480i / 480p / 576i / 576p / 720p / 1080i / 1080p VGA / SVGA / XGA / WXGA (1280 x 800) / Quad-VGA / SXGA / WXGA (1366 x 768) / WXGA (1366 x 768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESA1080 / WUXGA / QWXGA * VESA1080 / WUXGA / QWXGA are only output as Reduced Blanking
		Audio	Digital	Number / Signal
	Connector			1 female HDMI Type A, 1 RJ-45
	Analog		Number / Signal	2 outputs / Stereo LR balanced and unbalanced signals - Balanced signal Output impedance: 100 Ω Reference level: -4 dBu Max. output level: +16 dBu - Unbalanced signal Output impedance: 50 Ω Reference level: -10 dBu Max. output level: +10 dBu
			Connector	2 terminal blocks (5-pin)
	Max. extension distance	Input	HDMI / DVI	From 32.8 ft/10 m up to 99 ft/30 m (approx.) (*5)
HDBaseT			Max. 330 ft/100 m (approx.) (*6)	
Output		HDMI / DVI	Max. 16.4 ft/5 m (approx.) (*5)	
		HDBaseT	Max. 330 ft/100 m (approx.) (*6)	
Function	Scan Converter		Aspect Ratio Control, Seamless Switching (*7), Picture adjustment (brightness, contrast, display position, display size), Picture-in picture (PiP)	
	Others		All function settings through browser Volume adjustment (volume of input and output ports can be set separately) Cross-point memory (storage for 9 settings) Preset memory (8 settings and startup settings) Last memory Anti-Snow (*8) Connection Reset (*9) Front panel security lockout Auto input detection and switching	
External control	Serial control port	Number / Signal	1 port / RS-232C	
		Connector	1 terminal block (3-pin)	
	LAN control port	Number / Signal	1 port / 10Base-T (Auto Negotiation), 100Base-TX (Auto Negotiation), Auto MDI/MDI-X	
		Connector	1 RJ-45	

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Others	Others	Remote input channel switching for HDC-TH200 inputs through HDBaseT
	Power	Input: 100 - 240 VAC ± 10%, 50 Hz / 60 Hz ± 3 Hz Output: 12 VDC 3 A (power supply unit is supplied)
	Power consumption	About 29 Watts
	Dimensions	8.27 x 1.73 x 9.84" / 210 (W) x 44 (H) x 250 (D) mm (EIA rack 1/2U size, not including projections)
	Weight	4.19 lbs. approx. / 1.9 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 humidity: 20% to 90% (Non Condensing)

- \*1 30 bit/pixel (10 bit/component) Deep Color is supported while xvYCC, Lip Sync, 3D, ARC and HEC are not supported.
- \*2 Only HDBaseT output does not support HDCP-compliant DVI signals.
- \*3 RJ-45 (HDBaseT connector) is only for Cat5e / Cat6 twisted pair cable. Please do not use it for LAN devices or the like.
- \*4 T568A or T568B straight. For transmission longer than 164 ft. (50 m), Cat6 UTP/STP cable is recommended.
- \*5 The extension distance depends on the connected I/O devices. The distance mentioned above is the maximum extension range acquired when IDK's AWG24 cable was used and signals of 1080p@60 24 bit / pixel (8 bit / component) was input or output. With some I/O combinations, and if you use cables of other manufacturer, video may be disturbed or may not be output even if signals are within the range mentioned above.
- \*6 If connected to a device whose status is significantly bad, video signal can be unstable or cannot be output. Check the operation beforehand or contact us.
- \*7 Seamless switching with a black frame.
- \*8 The Anti-snow feature automatically fixes snow noise that is a specific symptom of HDCP-compliant signals and mainly occurs at start-up. This feature does not work when snow noise has already occurred during startup or when it occurs due to a bad condition of the transmission line.
- \*9 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 and rear panel

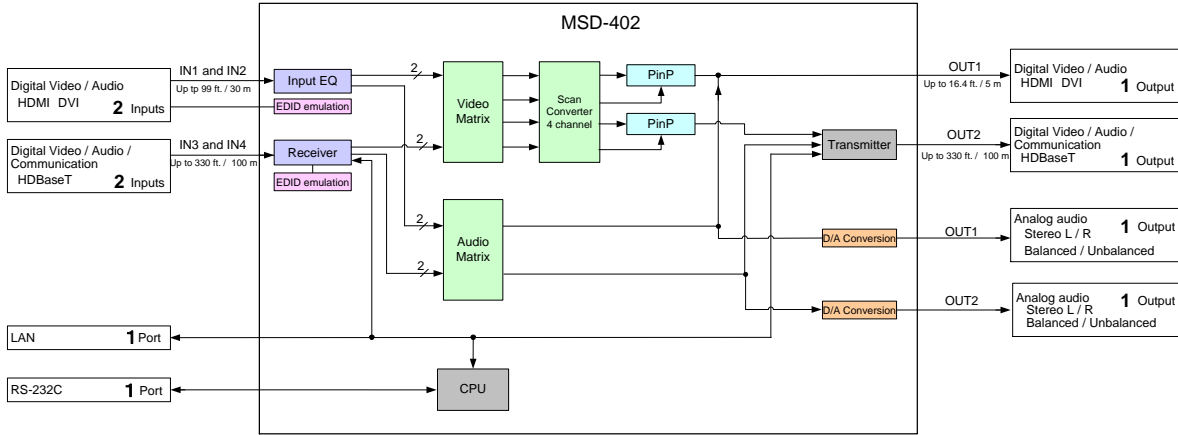


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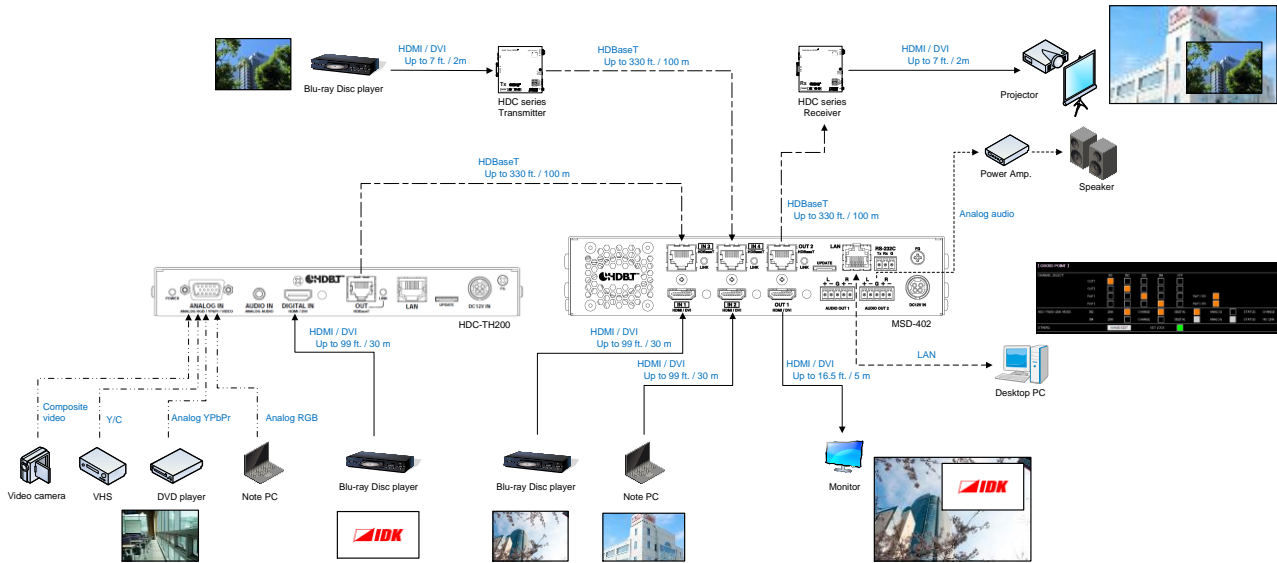


# Presentation switcher MSD-402 Diagram and Features

■ Diagram



■ Sample connection diagram



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**[Features]****■ Video**

- Up to QWXGA (RB)<sup>\*1</sup> or 1080p
- HDMI input cable EQ
  - INPUT: up to 33 ft. to 99 ft. approx. / 10 m to 30 m
- Up to 328.08 ft. approx. / 100 m extension over a Cat6 cable
- Scan converter
- Picture in Picture (PinP) function
- Aspect control
- Seamless switching<sup>\*2</sup>
- Anti-snow

**■ Audio**

- Digital audio de-embedded
- Audio level adjustment for each input/output.

**■ Control input**

- RS-232C, LAN

**■ Control output**

- Remote input channel switching for HDC-TH200 inputs through HDBaseT

**■ Others**

- EDID emulation (with copy function)
- Web browser for all settings
- Automatic input channel switching
- Crosspoint memory
- Preset memory
- Last memory
- Connection Reset
- Key lock
- AC adapter mechanical lock

\*1 (RB) = Reduced Blanking

\*2 A black frame is displayed at the time of switching

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