Presentation Switcher (built in scan converter & scalar)
MSD-702

■Description

The IDK MSD-702 is simple-to-use, 4 digital (HDMI), 1 digital/analog switch-selectable (Universal DVI-I) and 2 analog inputs Presentation Switchers. 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 a twisted pair 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 LCD 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	Digital	Number / Signal	5 inputs / HDMI Deep Color (*1) / DVI 1.0 (HDCP) - TMDS single link, TMDS clock: 25 MHz to 225 MHz
			Connector	4 female HDMI Type A 1 female Universal DVI-I * 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 SDTV/HDTV: 480i/480p/576i/576p/720p/1080i/1080p VESA: Dot clock 25 MHz to 165 MHz (VGA to QWXGA) * WUXGA/QWXGA are supported only with Reduced Blanking
	Audio	Digital	Number / Signal	5 inputs / Multi-channel linear PCM 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 IN5 are switch-selectable between digital and analog audio
			Connector	4 female HDMI Type A 1 female Universal DVI-I * 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 IN5 are switch-selectable between digital and analog audio
			Connector	7 RCA pin jack
Output	Video	Digital	Number / Signal	2 outputs / HDMI Deep Color (*1) / DVI 1.0 (HDCP) - TMDS single link * The switcher can output both an HDMI output and a twisted pair output simultaneously
			Connector	2 female HDMI Type A
			Others	Built-in Digital Cable EQ
		Digital Twisted pair extension	Number / Signal	2 outputs (*2) / HDMI Deep Color (*1) / DVI 1.0 (HDCP) - TMDS single link * The switcher can output both an HDMI output and a twisted pair output simultaneously
			Connector	2 RJ-45 (*3) Cable: Cat5e/Cat6 (STP/UTP straight cable) (*4)

		Format		SDTV/HDTV: 480i/480p/576i/576p/720p/1080i/1080p
				 VESA: VGA/SVGA/XGA/WXGA(1280x768)/WXGA(1280x800)/Quad-VGA/SXGA/
				        WXGA(1360x768)/WXGA(1366x768)/SXGA+/WXGA+/WXGA++/UXGA/
				        WSXGA+/VESA1080/WUXGA/QWXGA
				    * VESA1080/WUXGA/QWXGA are only output as Reduced Blanking

	Audio	Digital	Number / Signal	2 outputs / Multi-channel linear PCM 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 a twisted pair output simultaneously
			Connector	2 female HDMI Type A, 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	2 RCA pin jack
	Lip Sync			Up to 17 frames

Item			Description
Functions	Built-in Digital Cable EQ		Digital Input - From 33 ft (approx.) <10 m> up to 99 ft (approx.) <30 m> (*5) Digital Output - HDMI/DVI output: From 33 ft (approx.) <10 m> up to 165 ft (approx.) <50 m> (*5) - Twisted pair output: Up to 330 ft (approx.) <100 m> (*6)
	Analog video processing unit		3D Y/C separation
	Scan Converter		Aspect Ratio Control, Seamless Switching (*7), Picture adjustment (brightness, contrast, display position, display size), Motion adaptive I/P conversion
	Others		Volume adjustment (volume of input and output ports can be set separately) Audio breakaway enables independent audio and video switching Cross-point memory (storage for 7 settings) Preset memory (8 settings and startup settings) Last memory Anti-Snow (*8) Connection Reset (*9) External control commands (32 commands) Front panel security lockout
External control	Serial control port	Number / Signal	1 port / RS-232C
		Connector	1 female 9-pin D-Sub
	LAN control port	Number / Signal	1 port / 10Base-T (Auto Negotiation), 100Base-TX (Auto Negotiation), Auto MDI/MDI-X
		Connector	1 RJ-45
	Command outputs to external device		RS-232C, LAN, CEC (controls power of display)(*10), PJLink (class1)
Others	Power		100 - 240 VAC ± 10%, 50 Hz/60 Hz ± 3 Hz
	Power consumption		TBD
	Dimensions		16.93 (W) x 1.73 (H) x 13.88 (D)" (approx.) (EIA rack 1U, not including projections) <430 (W) x 44(H) x 350 (D) mm>
	Weight		TBD
	Temperature		Operating temperature: 32 °F to 104 °F <0 °C to +40 °C> Storage temperature: -4 °F to +176 °F <-20 °C to +80 °C>
	Humidity		Operating/ Storage humidity: 20 % to 90 % (Non Condensing)

(*1)   This product supports 30 bits/pixel Deep color (10 bit/component). It does not support xvYCC, Automatic Lip Sync, 3D, ARC, HEC. (Lip sync can be adjusted manually.)
(*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)   Wiring is straight T568A or T568B. If exceeding 50 m, it is recommended to use a Cat6 cable.
(*5)   Transmission distance depends on connected equipment. The information above is maximum transmission distance when a cable made by IDK (AWG24) is used and signals (1080p 60 Hz 24bit/pixel (8bit/component)) are transmitted (both inputs and outputs of this product). When connected equipment is not matched to this product or other makers' cables are used, video signal can be unstable or video signals cannot be output, even though transmission distance is within the information above.
(*6)   Since some LCD monitors do not stabilize during operation, please have an evaluation before using or ask IDK for advices.
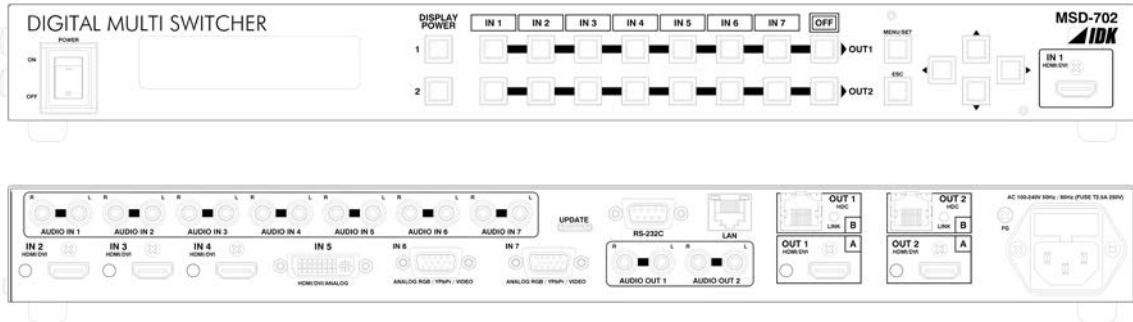(*7)   Seamless Switching has one black frames or back color.
(*8)   The Anti-Snow function can automatically recover from snow-noise that is a specific symptom of digital signals having HDCP. Mainly, this snow-noise occurs during system startup. Therefore, this function does not work in case of snow-noise 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.
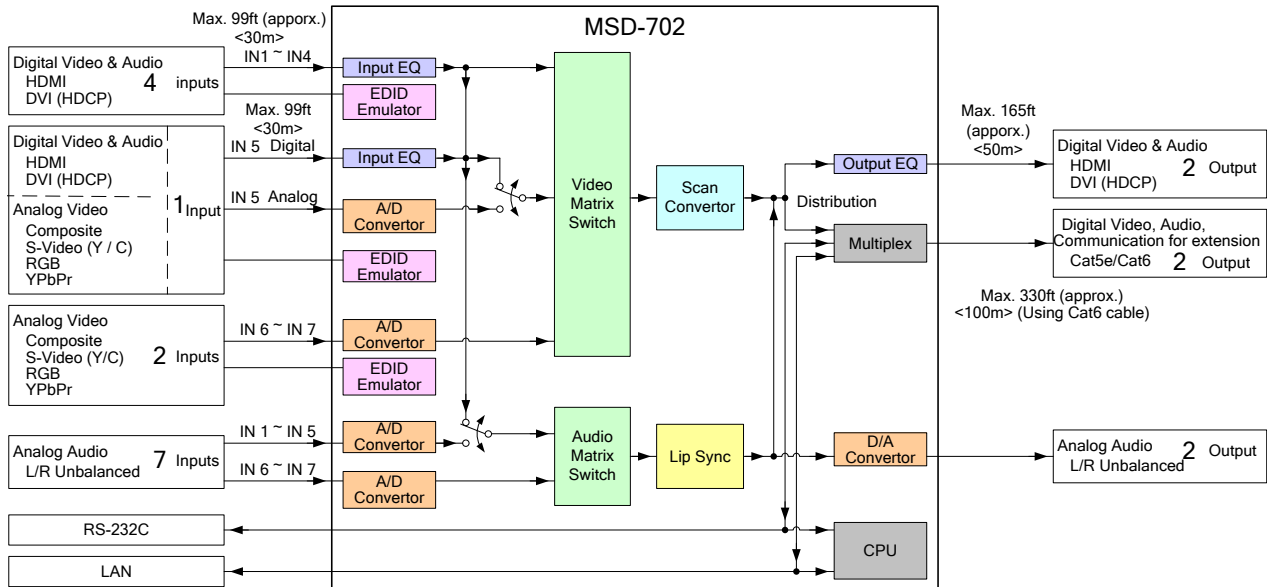
■ **Front & Rear Panel**

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Presentation Switcher (built in scan convertor & scalar)
MSD-702 Diagram and Features

[Block diagram]

[Features]

■Video
- Up to QWXGA (RB)* or 1080p
- ***Built-in Digital Cable EQ***
    - INPUT: Up to 33ft to 99ft (approx.) <10m to 30m>
    - OUTPUT: Up to 33ft to 165ft (approx.) <10m to 50m>
- Extends output signal up to 330ft (approx.)<100m> using a Cat6 twisted pair cable
- Supplies power through twisted pair output to a receiver
- ***Front panel LCD menu for setup and signal status check***
- ***Simultaneous output from an HDMI output and a twisted pair output***
- ***Aspect Ratio Control***
- ***Seamless Switching***
- ***Anti-Snow***

■ Audio
- Volume adjustment
- Lip Sync

■ Control
- Input: RS-232C, LAN
- Output: RS-232C, LAN, CEC, PJLink

■ Others
- ***Front panel HDMI input***
- ***Connection reset***
- EDID emulation
- Audio breakaway enables independent audio and video switching
- Preset memory, Last memory, and Cross-point memory
- Front panel security lockout
- Internal test patterns for calibration and setup

* 1. (RB) = Reduced Blanking

IDK Corporation