



# FDX-12UHD

The IDK FDX-12UHD is a new level of Digital Matrix Switcher for AV systems which supports resolution up to 4K @60 and HDCP2.2. The FDX-12UHD can input/output HDCP protected contents such as Blu-ray, and it can support DVI signal by using HDMI to DVI connector conversion cable. The FDX-12UHD combines the simplicity and reliability of a fixed I/O matrix switcher with the convenience and flexibility of a modular matrix switcher. The FDX-12UHD accepts any combination of available HDMI/DVI, or HDBaseT input/output boards. Input and output boards are available in 4-input, 4-output, providing various I/O size combinations with sizes from 4x4 to 12x12. The FDX series also have RS-232 and LAN ports for external device control.

## ■ Specification

Item		Description
Input		12 inputs
Output		12 outputs
Input board	4K Digital	Up to 3 boards, 4 inputs per board (Up to 12 inputs)
	4K HDBaseT	
Output board	4K Digital	Up to 3 boards, 4 outputs per board (Up to 12 outputs)
	4K HDBaseT	
Functions		Audio breakaway for independent audio and video switching (When MAU-1616 (Optional) is connected), I/O board, CPU board, and fan unit can be replaced without removing from rack, Preset memory (32 memories), Last memory, Front key function lock, Anti-Snow (*1), Connection Reset (*2), The number of I/Os can be customized, RS-232C transmission (4K HDBaseT I/O board), System check, All functions and configuration settings accessible through browser, Backup power supply unit (Optional)
Instant Alert output		1 port/2-pin terminal block/Power unit monitoring, Fan unit monitoring, Temperature monitoring
External control	RS-232C	1 port/male D-sub (9 pin)
	LAN	1 port/RJ-45 10Base-T/100Base-TX (Auto Negotiation), Auto MDI/MDI-X
	Optional (MAU-1616)	1 port/female D-sub (25 pin)
General	Power	100 - 240 VAC ± 10%, 50 Hz/60 Hz ± 3 Hz
	Power consumption (*3)	4K digital input/output board Max. configuration Without backup power supply : About 73 Watts With backup power supply : About 80 Watts
		4K HDBaseT input/output board Max. configuration Without backup power supply : About 157 Watts With backup power supply : About 168 Watts
	Dimensions	16.9 (W) × 5.2 (H) × 13.8 (D)" (430 (W) × 132 (H) × 350 (D) mm) (3U high) (Excluding connectors and the like)
	Weight (*3)	4K digital input/output board Max. configuration Without backup power supply : About 21.8 lbs. (9.9 kg) With backup power supply : About 23.1 lbs. (10.5 kg)
		4K HDBaseT input/output board Max. configuration Without backup power supply : About 24.5 lbs. (11.1 kg) With backup power supply : About 25.6 lbs. (11.6 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)	

## ■ Input board specification

Item		Description
<b>4K Digital input board</b>		
Input		4 inputs
Video	HDMI/DVI	HDMI Deep Color (*4)/DVI 1.0 TMDS single link, HDCP 1.4/2.2, HDR (*5), 3D (*6), x.v.Color TMDS clocks: 25 MHz to 300 MHz, TMDS data rate: 0.75 Gbps to 18 Gbps EDID emulation
	Formats	VGA to 4K (Dot clock 25 MHz to 600 MHz) 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K (up to 4K@60 (4:4:4))
Audio	Digital	Multi-channel LPCM up to 8 channels Sampling frequency : 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		Female HDMI Type A (19-pin)
Transmission distance		Up to 98 ft. (30 m) (1080p@60), up to 39ft. (12 m) (4K@60) (*7)

<b>4K HDBaseT input board</b>		
Input		4 inputs
Video	HDBaseT	HDBaseT (*8) HDCP 1.4/2.2 (*9), HDR (*5), 3D (*6), x.v.Color EDID emulation
	Formats	VGA to 4K (Dot clock 25 MHz to 300 MHz) * For WQHD / WQXGA, only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K (up to 4K@60 (4:2:0))
Audio	HDBaseT	Multi-channel linear PCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		RJ-45 (*10)
Cable		CAT.5E HDC, Cat5e UTP/STP, Cat6 UTP/STP (*11)
Transmission distance		328 ft. (100 m) (*12)

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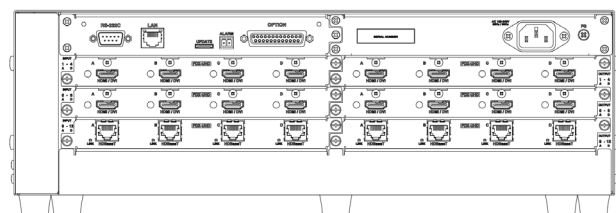
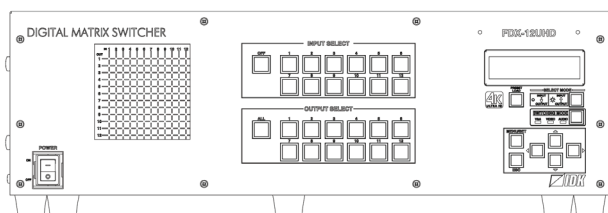
## Output board specification

Item		Description
<b>4K Digital output board</b>		
Output		4 outputs
Video	HDMI/DVI	HDMI Deep Color (*4)/DVI 1.0 TMDS single link, HDCP 1.4/2.2, HDR (*5), 3D (*6), x.v.Color TMDS clock: 25 MHz to 300 MHz, TMDS data rate: 0.75 Gbps to 18 Gbps
	Formats	VGA to 4K (Dot clock 25 MHz to 600 MHz) 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K (up to 4K@60 (4:4:4))
Audio	Digital	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		Female HDMI Type A (19-pin)
Transmission distance		Up to 98 ft. (30 m) (1080p@60), up to 39ft. (12 m) (4K@60) (*7)

<b>4K HDBaseT output board</b>		
Output		4 outputs
Video	HDBaseT	HDBaseT (*8) HDCP 1.4/2.2 (*9), HDR (*5), 3D (*6), x.v.Color
	Formats	VGA to 4K (Dot clock 25 MHz to 300 MHz) *For WQHD / WQXGA Reduced Blanking, only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p / 4K (up to 4K@60 (4:2:0))
Audio	HDBaseT	Multi-channel linear PCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		RJ-45 (*10)
Cable		CAT.5E HDC, Cat5e UTP/STP, Cat6 UTP/STP (*11)
Transmission distance		328 ft. (100 m) (*12)

- \*1 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.
- \*2 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 FDX's output. If other devices are connected between the FDX's output and sink device, this feature may be invalid.
- \*3 Please contact IDK sales for temperature and weight of each combination of inputs and outputs boards.
- \*4 4K format: following color depth are supported. ARC, HEC and CEC are not supported.
- 24 Hz/25 Hz/30 Hz : 24 bit, 30 bit, 36 bit (RGB, YCbCr 4:4:4, YCbCr 4:2:2)
  - 50 Hz/59.94 Hz/60 Hz : 24 bit, 30 bit, 36 bit (YCbCr 4:2:2, YCbCr 4:2:0)  
: 24 bit (RGB, YCbCr 4:4:4)
- \*5 HDR is supported if the connected sink device supports HDR and its copied EDID is set for EDID.
- \*6 3D is supported if the connected sink device supports 3D and its copied EDID is set for EDID.
- \*7 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.
  - 4K@60 : when IDK's 18 Gbps supported cable was used and signals of 4K@60 24 bit/pixel (8 bit/component) was input or output.
- The maximum cable distance depends on the connected devices. With some 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.
- \*8 4K format: following color depth are supported. ARC, HEC and CEC are not supported.
- 24 Hz/25 Hz/30 Hz : 24 bit (RGB, YCbCr 4:4:4, YCbCr 4:2:2)
  - 50 Hz/59.94 Hz/60 Hz : only 24 bit (YCbCr 4:2:0) and CEA-861
- \*9 DVI signals protected by HDCP are not supported. To transmit those signals, use an IDK's HDBaseT transmitter supporting DVI signals.
- \*10 RJ-45 (HDBaseT connector) is only for extending digital video and audio signals over a Cat5e/Cat6 category cable. Use it with IDK's HDBaseT extender. Do not use for LAN devices.
- \*11 T568A or T568B straight. The CAT.5E HDC cable is developed by IDK and recommended by HDBaseT alliance.
- \*12 The maximum distance was obtained when IDK CAT.5E HDC cable was used.  
If connected to a device that is in extremely bad condition, the video may be unstable or not be output. Operations may not be stable with some LCD devices; please check the operation beforehand or contact us. The maximum extension distance is the shorter one of HDBaseT product and sink device that are connected to the FDX.

## Front & Rear Panels

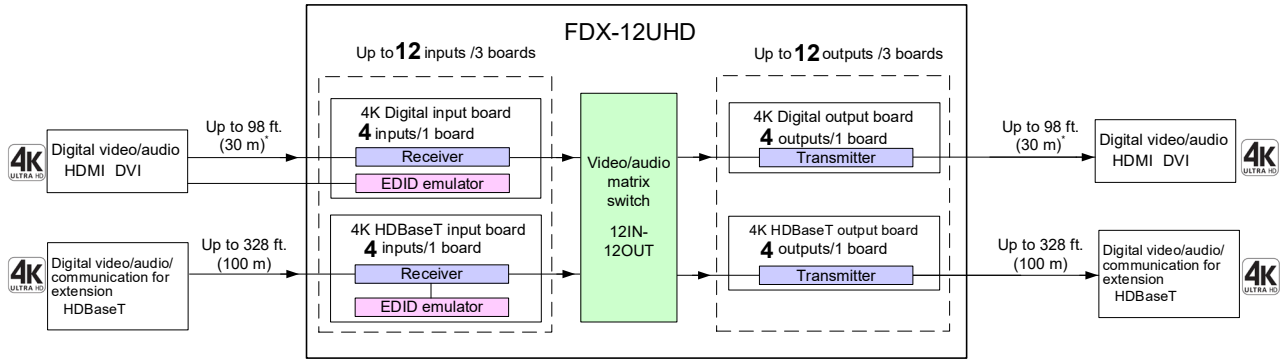


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# 4K@60/ HDCP 2.2 Modular Matrix Switcher FDX-12UHD Diagram and Features

■ **Diagram**



- Input board : Can be added by 4 inputs
- Output board : Can be added by 4 outputs

\*Maximum transmission distances  
 98 ft. (30 m): 1080p@60  
 39 ft. (12 m): 4K@60 (when cable supporting 18 Gbps transmission is used)

■ **Ordering code**

FDX-12UHD UH8UT4-UH8UT4-DP

①   ②   ③   ④

UH: 4K Digital input/output board	①: The number of 4K digital inputs
UT: 4K HDBaseT input/output board	②: The number of 4K HDBaseT inputs
DP: With backup power supply (optional)	③: The number of 4K digital outputs
	④: The number of 4K HDBaseT outputs

Ex.) 12 inputs 8 outputs  
 Four (4) 4K digital inputs and eight (8) 4K HDBaseT inputs  
 Four (4) 4K digital outputs and four (4) 4K HDBaseT outputs  
**FDX-12UHD UH4UT8-UH4UT4**

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**[Features]****■ Video**

- Up to 4K@60 (4:4:4)\*
- HDCP 1.4/2.2
- Transmission distances (4K digital I/O board)
  - 1080p@60 : up to 98 ft. (30 m)
  - 4K@60 : up to 39 ft. (12 m) (when cable supporting 18 Gbps transmission is used)
- Up to 328 ft. (100 m) over Cat6 cable
- Anti-Snow
- HDR
- 3D
- x.v.Color
- The number of I/Os can be customized

**■ Control input**

- RS-232C
- LAN

**■ Others**

- EDID emulation
- Audio breakaway for independent audio and video switching (When MAU-1616 (Optional) is connected)
- I/O board, CPU board, and fan unit can be replaced without removing from rack
- Alarm output (Monitoring power source, fans, and internal temperature)
- Preset memory
- Last memory
- Connection Reset
- Front key function lock
- System check
- All functions and configuration settings accessible through browser
- Backup power supply unit (Optional)
- RS-232C transmission (4K HDBaseT I/O board)

\* 4K HDBaseT I/O board: Up to 4K@60 (4:2:0)

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