Digital Matrix Switcher
FDX-16

■Description

The IDK FDX series represent a new level of matrix switching for AV systems. The FDX series combine the simplicity and reliability of a fixed I/O matrix switcher with the convenience and flexibility of a modular matrix switcher. The FDX accepts any combination of available HDMI/DVI, twisted pair cable extension (HDBaseT), or fiber optic extension 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 64x64, depending on the FDX frame selected. The FDX series also supports HDCP, and it is ideal for a wide range of applications that require routing of high-resolution digital video signals.

■Specification

Item			Description
Input	HDMI/DVI		Up to 16 inputs
	Twisted pair extension		- 4 inputs per board
	Optical extension		- Any combination of input boards can be install up to 4 boards and 16 inputs
Output	HDMI/DVI		Up to 16 outputs
	Twisted pair extension		- 4 outputs per board
	Optical extension		- Any combination of output boards can be install up to 4 boards and 16 outputs
Function			Audio breakaway enables independent audio and video switching
			- Audio unit MAU-1616 is required (optional)
			Startup memory
			Preset memory (32 settings and startup settings)
			Last memory
			Anti-Snow (*12)
			Connection Reset (*13)
			Front panel security lockout
			Input, output, and CPU boards can be exchanged without taking off the unit from rack mount
Instant Alert output		Number / Signal	1 port / Power unit monitoring, Fan unit monitoring
		Connector	1 2-pin terminal block
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
	MAU-1616 (option)	Number / Signal	1 port
		Connector	1 female 25-pin D-Sub
Others	Power		100 - 240 VAC ± 10%, 50 Hz/60 Hz ± 3 Hz
	Power consumption (*14)		Twisted pair extension input / output Max. configuration: Around 212 Watts
			Fiber optic extension input / output Max. configuration: Around 255 Watts
			HDMI / DVI input / output Max. configuration: Around 123 Watts
	Dimensions		16.93 (W) x 1.73 (H) x 13.88 (D)" (approx.) (EIA rack 3U, not including projections)
			<430 (W) x 132 (H) x 350 (D) mm>
	Weight		Twisted pair extension input / output Max. configuration: Around 23.81 lbs <10.8 kg>
			Fiber optic extension input / output Max. configuration: Around 27.34 lbs <12.4 kg>
			HDMI / DVI input / output Max. configuration: Around 21.61 lbs <9.8 kg>
	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)

■Input Board Specification

Twisted pair extension input board			
	Video	Number / Signal	4 inputs / Digital signals for extension - HDMI Deep Color (*1) / DVI 1.0 - HDCP 1.4 (*2) - TMDS clock: 25 MHz to 225 MHz
		Connector	4 RJ-45 (*3)
		Formats	480i/480p/576i/576p/720p/1080i/1080p VGA to QWXGA * WUXGA / QWXGA only support Reduced Blanking
		Others	EDID emulation
	Audio	Number / Signal	4 inputs / Digital signals for extension - Multi-channel linear PCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit
		Connector	4 RJ-45 (*3)
	Twisted pair cables		Cat6 UTP/STP straight cable, Cat5e UTP/STP straight cable (*4)
	Maximum distance		330ft (approx.) <100 m> (using a Cat6 UTP / STP cable) (*5)

Fiber optic extension input board (*6)			
	Video	Number / Signal	4 inputs / Optical signal for extension - HDMI (*7) / DVI 1.0 - HDCP 1.4 - TMDS clock: 25 MHz to 165 MHz
		Connector	4 SFP modules (2 LC connectors per SFP module)
		Formats	480i/480p/576i/576p/720p/1080i/1080p VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) /SXGA+ / WXGA+ / WXGA++ / UXGA/WSXGA+/WUXGA * WUXGA only supports DVI signal and output as Reduced Blanking
		Others	EDID emulation
	Audio	Number / Signal	4 inputs / Optical signals for extension - Multi-channel linear PCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit
		Connector	4 SFP modules (2 LC connectors per SFP module)
	Fiber optic cable	Suitable cable	Duplex fiber cable, SFP module (2 LC connectors) (*8)
		Polishing (*9)	SFP for Multimode: PC (recommended) SFP for Singlemode: UPC (recommended), SPC supported * APC is not supported
	Maximum distance (*10)		Multimode fiber (OM3): 985 ft (approx.) <300 m> Multimode fiber (OM4): 3,280 ft (approx.) <1 km> Singlemode fiber (OS1): 15,420 ft (approx.) <4.7 km>

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HDMI / DVI input board

Video	Video	Number / Signal	4 inputs / HDMI Deep Color (*1) / DVI 1.0 - TMDS single link, TMDS clock: 25 MHz to 225 MHz - HDCP 1.4 (*2) - TMDS clock: 25 MHz to 225 MHz
		Connector	4 female 29-pin DVI-I *Analog signals cannot input
		Formats	480i/480p/576i/576p/720p/1080i/1080p VGA to QWXGA * WUXGA / QWXGA only support Reduced Blanking
		Others	EDID emulation, Digital cable EQ
	Audio	Number / Signal	4 inputs / Multi-channel linear PCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit
		Connector	4 female 29-pin DVI-I
	Maximum distance (*11)		From 33 ft (approx.) <10 m> up to 99 ft (approx.) <30 m>

■Output Board Specification

Twisted pair extension output board

Video	Video	Number / Signal	4 outputs / Digital signals for extension - HDMI Deep Color (*1) / DVI 1.0 - HDCP 1.4 (*2) - TMDS clock: 25 MHz to 225 MHz
		Connector	4 RJ-45 (*3)
		Formats	480i/480p/576i/576p/720p/1080i/1080p VGA to QWXGA * WUXGA / QWXGA only support Reduced Blanking
	Audio	Number / Signal	4 outputs / Digital signals for extension - Multi-channel linear PCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit
		Connector	4 RJ-45 (*3)
	Twisted pair cables		Cat6 UTP/STP straight cable, Cat5e UTP/STP straight cable (*4)
	Maximum distance		330ft (approx.) <100 m> (using a Cat6 UTP / STP cable) (*5)

Fiber optic extension output board (*6)

Video	Video	Number / Signal	4 outputs / Optical signal for extension - HDMI (*7) / DVI 1.0 - HDCP 1.4 - TMDS clock: 25 MHz to 165 MHz
		Connector	4 SFP modules (2 LC connectors per SFP module)
		Formats	480i/480p/576i/576p/720p/1080i/1080p VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) /SXGA+ / WXGA+ / WXGA++ / UXGA/WSXGA+/WUXGA * WUXGA only supports DVI signal and output as Reduced Blanking
	Audio	Number / Signal	4 outputs / Optical signals for extension - Multi-channel linear PCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit
		Connector	4 SFP modules (2 LC connectors per SFP module)
	Fiber optic cable	Suitable cable	Duplex fiber cable, SFP module (2 LC connectors) (*8)
		Polishing (*9)	SFP for Multimode: PC (recommended) SFP for Singlemode: UPC (recommended), SPC supported * APC is not supported
	Maximum distance (*10)		Multimode fiber (OM3): 985 ft (approx.) <300 m> Multimode fiber (OM4): 3,280 ft (approx.) <1 km> Singlemode fiber (OS1): 15,420 ft (approx.) <4.7 km>

HDMI / DVI output board

Video	Video	Number / Signal	4 outputs / HDMI Deep Color (*1) / DVI 1.0 - TMDS single link, TMDS clock: 25 MHz to 225 MHz - HDCP 1.4 (*2) - TMDS clock: 25 MHz to 225 MHz
		Connector	4 female 29-pin DVI-I *Analog signals cannot input
		Formats	480i/480p/576i/576p/720p/1080i/1080p VGA to QWXGA * WUXGA / QWXGA only support Reduced Blanking
		Others	Digital cable EQ
	Audio	Number / Signal	4 outputs / Multi-channel linear PCM up to 8 channels - Sampling frequency: 32 kHz to 192 kHz - Sample size: 16 bit to 24 bit
		Connector	4 female 29-pin DVI-I
	Maximum distance (*11)		From 33 ft (approx.) <10 m> up to 131 ft (approx.) <40 m>

■SFP Specification

Item		Multimode fiber	Singlemode fiber
Connector		2 LC connectors (Duplex)	
Wave length		850 nm (Oxide VCSEL Laser (*15))	1310 nm (Fabry-Perot laser (*15))
Maximum distance		OM3: 985ft (approx.) <300m> OM4: 3,280ft (approx.) <1km>	OS1: 2.92 miles (approx.) <4.7km>
Optical power level	Input	Over -13 dBm	Over -18 dBm
	Output	-9 dBm to -2.5 dBm	-8.4 dBm to -3 dBm

(*1)   This product supports 36 bits/pixel Deep color (12 bit/component). It does not support xvYCC, Lip Sync, 3D, ARC, HEC, and CEC
(*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)   The IDK OPF-H1000-A must be connected for optical extension input and output cards.
(*7)   It does not support Deep Color, xvYCC, Lip Sync, 3D, ARC, HEC, and CEC
(*8)   Please refer to SFP Specification.

●Specifications subject to can be changed without prior notice ●"HDMI", logotype of "HDMI", and "High-Definition Multimedia Interface" are trademarks or registered trademarks of
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States, and other countries and regions. ●JBMIA: Japan Business Machine and Information System Industries Association.

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(*9)   It is possible to connect without using the recommended polishing method, but that may cause a change of extension distance ability due to an increase in return loss.
(*10) Max. Extension distance is measured under following condition; using fiber of recommended polishing method, without connection at the transmission path and not exceeding the value of allowable bending radius.
(*11) 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.
(*12) 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.
(*13) 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.
(*14) Please contact our Sales Division for power consumption information of each configuration.
(*15) This device uses laser certified to be Class 1 as measured in JIS C 6802, which means they are designed to be fundamentally safe
(*16) If SFP is for Singlemode fiber, we have modules which can extend up to 30 km (OS1). For the request, please ask our Sales division.

■Front & Rear Panel

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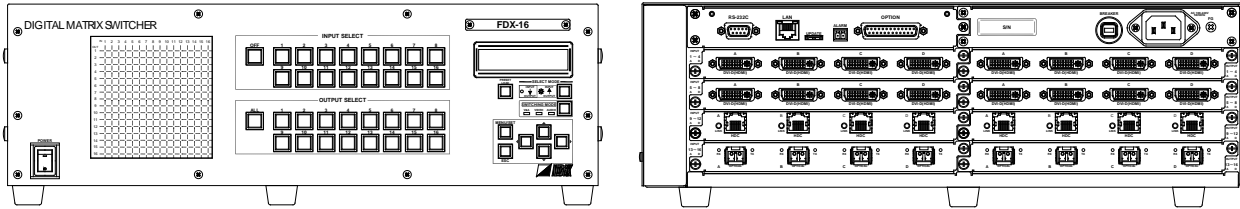
Digital Matrix Switcher
FDX-16 Features

[Features]
■Video
- Up to QWXGA (RB)* or 1080p
- *4 port slot board type input and output board*
  Built-in Digital Cable EQ (HDMI / DVI input and output board)
      INPUT: Up to 33 ft to 99 ft (approx.) <10 m to 30 m>
      OUTPUT: Up to 33 ft to 131 ft (approx.) <10 m to 40 m>
  Extension distance using a Cat6 twisted pair cable (Twisted pair extension input and output board)
      Up to 330 ft (approx.) <100 m>
  Extension distance using fiber optic (Fiber optic extension input and output board)
      Multimode fiber (OM3): 985 ft (approx.) <300 m>
      Multimode fiber (OM4): 3,280 ft (approx.) <1 km>
      Singlemode fiber (OS1): 15,420 ft (approx.) <4.7 km>
- *Anti-Snow*

■ Control
- RS-232C, LAN

■ Others
- *Connection reset*
- *Instant Alert Function for power supply and Fan units*
- *Input, output, and CPU boards can be exchanged without taking off the unit from rack mount*
- EDID emulation
- Audio breakaway enables independent audio and video switching
- Preset memory, Last memory, and Startup memory
- Front panel security lockout

* (RB) = Reduced Blanking
* Max. resolution for fiber optic extension input and output board are WUXGA (RB)

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