FDX-Series 08/16/32/64

Digital Matrix Switcher

IDK
with your vision, Always.

The IDK FDX-Series are a high-performance digital matrix switcher accepting any combination of available HDMI/DVI signals, 3G-SDI signals, twisted pair cable extension (HDBaseT) and fiber optic extension input / output boards. Input and output boards are available with 4-input ports and 4-output ports, providing various I/O combinations with sizes ranging from 4x4 to 8x8 / 16x16 / 32x32 / 64x64. The FDX-08 / FDX-16 / FDX-32 / FDX-64 also supports HDCP, and it is ideal for a wide range of applications that require routing of high-resolution digital video signals.
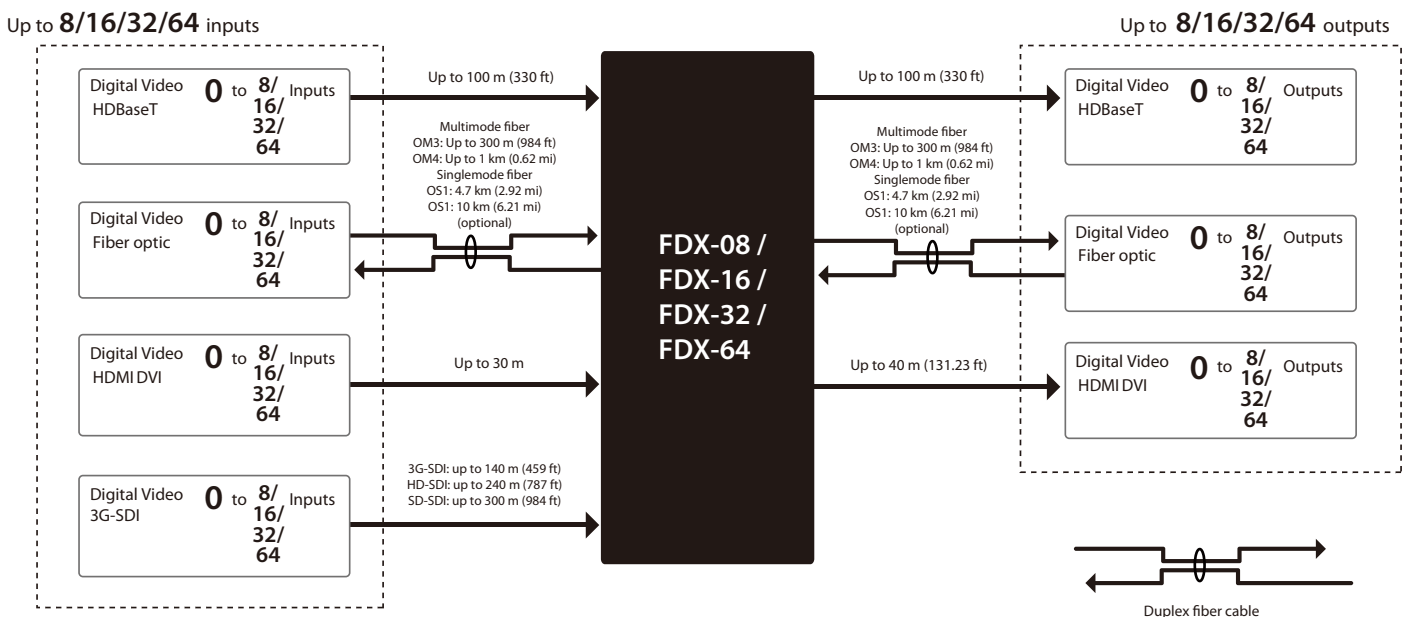
FRONT / REAR PANEL

FDX-08

FDX-16

FDX-32

FDX-64

FEATURES

Video:
- Up to QWXGA*1 (RB)*2 or 1080p *2 (RB) = Reduced Blanking
- 4-port slot board type I/O board
  - 3G-SDI input boards
  The number of inputs can be customized by 4 ports / 1 slot board
  The number of outputs can be customized by 4 ports or 2 ports / 1 slot board
- Built-in cable EQ
  Input: 10 m to 30 m (33 ft to 98 ft)
  Output: 10 m to 40 m (33 ft to 131 ft)
- Extension distance over Cat6 twisted pair cable
  (HDBaseT input and output board)
  Input: Up to 100 m (328 ft)
  Output: Up to 100 m (328 ft)

- Extension distance over fiber optic
  (Fiber optic extension input and output board)
  Multimode fiber (OM3): Up to 984 ft. (300 m)
  Multimode fiber (OM4): Up to 0.62mi. (1 km)
  Singlemode fiber (OS1): Up to 2.92 mi. (4.7 km)
  (Optional: 6.21 mi. (10 km))
- Anti-snow
- Output resolution can be selected (scan converter output slot board)

CONNECTION DIAGRAM

Up to **8/16/32/64** inputs

Up to **8/16/32/64** outputs

| Digital Video HDBaseT | 0 to 8/16/32/64 Inputs |

Up to 100 m (330 ft)

Multimode fiber
OM3: Up to 300 m (984 ft)
OM4: Up to 1 km (0.62 mi)
Singlemode fiber
OS1: 4.7 km (2.92 mi)
OS1: 10 km (6.21 mi)
(optional)

| Digital Video Fiber optic | 0 to 8/16/32/64 Inputs |

| Digital Video HDMI DVI | 0 to 8/16/32/64 Inputs |

Up to 30 m

3G-SDI: up to 140 m (459 ft)
HD-SDI: up to 240 m (787 ft)
SD-SDI: up to 300 m (984 ft)

| Digital Video 3G-SDI | 0 to 8/16/32/64 Inputs |

FDX-08 / FDX-16 / FDX-32 / FDX-64

Up to 100 m (330 ft)

Multimode fiber
OM3: Up to 300 m (984 ft)
OM4: Up to 1 km (0.62 mi)
Singlemode fiber
OS1: 4.7 km (2.92 mi)
OS1: 10 km (6.21 mi)
(optional)

| Digital Video HDBaseT | 0 to 8/16/32/64 Outputs |

| Digital Video Fiber optic | 0 to 8/16/32/64 Outputs |

Up to 40 m (131.23 ft)

| Digital Video HDMI DVI | 0 to 8/16/32/64 Outputs |

Duplex fiber cable

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FDX-08

Input	HDMI / DVI	Up to 8 inputs
	HDBaseT	4 inputs per board
	Optical extension	Any combination of input boards can be install up to 4 boards and 16 inputs
	3G-SDI input boards	Up to 8 inputs
Output	HDMI / DVI	Up to 8 outputs
	HDBaseT	4 outputs per board
	Optical extension	Any combination of output boards can be install up to 4 boards and 16 outputs

FDX-16

Input	HDMI / DVI	Up to 16 inputs
	HDBaseT	4 inputs per board
	Optical extension	Any combination of input boards can be install up to 4 boards and 16 inputs
	3G-SDI input boards	Up to 16 inputs
Output	HDMI / DVI	Up to 16 outputs
	HDBaseT	4 outputs per board
	Optical extension	Any combination of output boards can be install up to 4 boards and 16 outputs

FDX-32

Input	HDMI / DVI	Up to 32 inputs
	HDBaseT	4 inputs per board
	Optical extension	Any combination of input boards can be install up to 8 boards and 32 inputs
	3G-SDI input boards	Up to 32 inputs
Output	HDMI / DVI	Up to 32 outputs
	HDBaseT	4 outputs per board
	Optical extension	Any combination of output boards can be install up to 8 boards and 32 outputs

FDX-64

Input	HDMI / DVI	Up to 64 inputs
	HDBaseT	4 inputs per board
	Optical extension	Any combination of input boards can be install up to 16 boards and 64 inputs
Output	HDMI / DVI	Up to 64 outputs
	HDBaseT	4 outputs per board
	Optical extension	Any combination of output boards can be install up to 16 boards and 64 outputs

FDX-08 / FDX-16 / FDX-32 / FDX-64

Functions			Audio breakaway enables independent audio and video switching (option), Startup memory, Preset memory (32 settings and startup settings), Last memory, Anti-snow, Connection Reset, Front panel security lockout, Input / Output / CPU boards can be replaced without taking off from rack mount, Redundant power supply unit (optional)
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) MAU-3232 (option) MAL-64-B and MAR-64-B (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 FDX-08		• HDMI/DVI input/output max. configuration: about 71 watts • HDBaseT input/output max. configuration: about 118 watts • Fiber optic input/output max. configuration: about 136 watts (MM)/141 watts (SM) • HDMI/DVI input/scan converter output max. configuration: about 68 watts • HDBaseT input/scan converter output max. configuration: about 112 watts • Fiber optic input/scan converter output max. configuration: about 117 watts (MM)/120 watts (SM) • 3G-SDI input/HDMI/DVI output max. configuration: about 69 watts
	Power consumption FDX-16		• HDMI/DVI input/output max. configuration: about 123 watts • HDBaseT input/output max. configuration: about 212 watts • Fiber optic input/output max. configuration: about 244 watts (MM)/255 watts (SM) • HDMI/DVI input/scan converter output max. configuration: about 118 watts • HDBaseT input/scan converter output max. configuration: about 200 watts • Fiber optic input/scan converter output max. configuration: about 209 watts (MM)/216 watts (SM) • 3G-SDI input/HDMI/DVI output max. configuration: about 119 watts

	Power consumption FDX-32		• Without redundant power supply
			  • HDMI/DVI input/output max. configuration: about 236 watts
			  • HDBaseT input/output max. configuration: about 410 watts
			  • Fiber optic input/output max. configuration: about 473 watts (MM)/494 watts (SM)
			  • HDMI/DVI input/scan converter output max. configuration: about 228 watts
			  • HDBaseT input/scan converter output max. configuration: about 387 watts
			  • Fiber optic input/scan converter output max. configuration: about 404 watts (MM)/418 watts (SM)
			  • 3G-SDI input/HDMI/DVI output max. configuration: about 230 watts
			• With redundant power supply
			  • HDMI/DVI input/output max. configuration: about 260 watts
			  • HDBaseT input/output max. configuration: about 456 watts
			  • Fiber optic input/output max. configuration: about 527 watts (MM)/550 watts (SM)
			  • HDMI/DVI input/scan converter output max. configuration: about 250 watts
			  • HDBaseT input/scan converter output max. configuration: about 430 watts
			  • Fiber optic input/scan converter output max. configuration: about 449 watts (MM)/464 watts (SM)
			  • 3G-SDI input/HDMI/DVI output max. configuration: about 253 watts

Others	Power	100 – 240 VAC ± 10%, 50 Hz / 60 Hz ± 3 Hz
	Power consumption FDX-64	• HDMI/DVI input/output max. configuration: about 466 watts • HDBaseT input/output max. configuration: about 852 watts • Fiber optic input/output max. configuration: about 1039 watts • HDMI/DVI input/scan converter output max. configuration: about 446 watts • HDBaseT input/scan converter output max. configuration: about 802 watts • Fiber optic input/scan converter output max. configuration: about 869 watts
	Dimensions FDX-08	16.9 (W) x 5.2 (H) x 13.8 (D)", 430 (W) x 132 (H) x 350 (D) mm, 19" 3 HE
	Dimensions FDX-16	16.9 (W) x 5.2 (H) x 13.8 (D)", 430 (W) x 132 (H) x 350 (D) mm, 19" 3 HE
	Dimensions FDX-32	Without redundant power supply • 16.9 (W) x 8.7 (H) x 13.8 (D)", 430 (W) x 221 (H) x 350 (D) mm, 19" 5 HE With redundant power supply • 16.9 (W) x 12.2 (H) x 13.8 (D)", 430 (W) x 310 (H) x 350 (D) mm, 19" 7 HE
	Dimensions FDX-64	16.9 (W) x 15.71 (H) x 13.8 (D)", 430 (W) x 399 (H) x 350 (D) mm, 19" 9 HE
	Weight FDX-08	HDBaseT input/output Max. configuration: approx. 9.2 kg Fiber optic extension input / output Max. configuration: approx. 9.9 kg HDMI / DVI input / output Max. configuration: approx. 8.7 kg
	Weight FDX-16	HDBaseT input / output Max. configuration: approx. 10.8 kg Fiber optic extension input / output Max. configuration: approx. 12.4 kg HDMI / DVI input / output Max. configuration: approx. 9.8 kg
	Weight FDX-32	HDBaseT input / output Max. configuration: approx. 17.4 kg Fiber optic extension input / output Max. configuration: approx. 20.4 kg HDMI / DVI input / output Max. configuration: approx. 15.3 kg
	Weight FDX-64	HDBaseT input / output Max. configuration: approx. 29.5 kg Fiber optic extension input / output Max. configuration: approx. 35.7 kg HDMI / DVI input / output Max. configuration: approx. 25.3 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)

Item		FDX-08	FDX-16	FDX-32	FDX-64
Input	HDMI / DVI	Up to 8 inputs	Up to 16 inputs	Up to 32 inputs	Up to 64 inputs
	HDBaseT				
	Optical extension				
	3G-SDI input boards				
Output	HDMI / DVI	Up to 8 outputs	Up to 16 outputs	Up to 32 outputs	Up to 64 outputs
	HDBaseT				
	Optical extension				

INPUT BOARD SPECIFICATION

HDMI/DVI input board		
Input		4 inputs
Video	HDMI/DVI	HDMI Deep Color (*5)/DVI 1.0 TMDS single link, HDCP 1.4 TMDS clock: 25 MHz to 225 MHz, TMDS data rate: 0.75 Gbps to 6.75 Gbps Automatic input signal equalization, EDID emulation
	Formats	VGA to QWXGA (Dot clock: 25 MHz to 165 MHz) * WUXGA / QWXGA: only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
Audio	Digital	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		1 Female DVI-I (29-pin) *Analog signals cannot be used.
Transmission distance		Up to 98 ft. (30 m) (*6)

HDBaseT input board		
Input		4 inputs
Video	HDBaseT	HDBaseT (*5) HDCP 1.4 (*7) EDID emulation
	Formats	VGA to QWXGA (Dot clock: 25 MHz to 165 MHz) * WUXGA / QWXGA: only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
Audio	HDBaseT	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		RJ-45 (*8)
Cable		CAT.5E HDC, Cat5e UTP/STP, Cat6 UTP/STP (*9)
Transmission distance		Up to 328 ft. (100 m) (*10)

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INPUT BOARD SPECIFICATION

Optic input board (*11)		
Input		4 inputs
Video	Digital optical signal for extension	Digital optical signal for extension (*12) HDCP 1.4 EDID emulation
	Formats	VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / WUXGA 　* WUXGA: Only Reduced Blanking and DVI signal are supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
Audio	Digital optical signal for extension	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Cable		Duplex fiber cable, SFP module (2 LC connectors) (*13)
Polishing (*14)		SFP for Multimode　: PC (recommended) SFP for Singlemode: UPC (recommended), SPC supported *APC is not supported
Transmission distances (*15)		Multimode fiber　(OM3): Up to 984 ft.　(300 m) Multimode fiber　(OM4): Up to 0.62 mi. (1 km) Singlemode fiber (OS1) : Up to 2.92 mi. (4.7 km) Singlemode fiber (OS1) : Up to 6.21 mi. (10 km) (Optional)

SDI input board		
Input		4 inputs (With loop-through output) Note: When the FDX is powered on, SDI input signals are output from SDI loop-through output connectors.
Video	SDI	3G-SDI/HD-SDI/SD-SDI NRZI / NRZ, 0.8 V[p-p] / 75 Ω SMPTE 424M (3G-SDI) / SMPTE 292M (HD-SDI) / SMPTE 259M-C (SD-SDI)
	Formats	480i / 576i / 720p / 1080i / 1080p *3G-SDI signals: Level A and Level B *720p: 23.98 Hz and 24 Hz are not supported.
Audio	Digital	LPCM up to 8 channels (Selecting 2 groups of audio groups1 to 4) Sampling frequency: 48 kHz, Sample size: 16 bit to 24 bit
Connector		BNC
Cable		75 Ω coaxial cable for high frequency signal
Transmission distances		3G-SDI signal input: L-5CFB 459 ft. (140 m) HD-SDI signal input: L-5CFB 787 ft. (240 m) SD-SDI signal input: L-5C2V 984 ft. (300 m) 　The maximum distances may be shorten depending on the quality of cable. Please make sure that the cable is 　long enough.

OUTPUT BOARD SPECIFICATION

Digital output board		
Output		4 outputs
Video	HDMI/DVI	HDMI Deep Color (*5)/DVI 1.0 TMDS signal link, HDCP 1.4 TMDS clock: 25 MHz to 225 MHz, TMDS data rate: 0.75 Gbps to 6.75 Gbps Automatic input signal equalization
	Formats	VGA to QWXGA (Dot clock: 25 MHz to 165 MHz) 　* WUXGA / QWXGA: only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
Audio	Digital	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		1 Female DVI-I (29-pin) *Analog signals cannot be used.
Transmission distance		Up to 131 ft. (40 m) (*6)

HDBaseT output board		
Output		4 outputs
Video	HDBaseT	HDBaseT (*5) HDCP 1.4 (*16)
	Formats	VGA to QWXGA (Dot clock: 25 MHz to 165 MHz) 　* WUXGA / QWXGA: Only Reduced Blanking is supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
Audio	HDBaseT	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		RJ-45 (*8)
Cable		CAT.5E HDC, Cat5e UTP/STP, Cat6 UTP/STP (*9)
Transmission distance		Up to 328 ft. (100 m) (*10)

Optical output board (*11)		
Output		4 outputs
Video	Digital optical signal for extension	Digital optical signal for extension (*12) HDCP 1.4
	Formats	VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / WUXGA 　*WUXGA: Only Reduced Blanking and DVI signals are supported. 480i / 480p / 576i / 576p / 720p / 1080i / 1080p
Audio	Digital optical signal for extension	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Cable		Duplex fiber cable, SFP module (2 LC connectors) (*13)
Polishing (*14)		SFP for Multimode　: PC (recommended) SFP for Singlemode: UPC (recommended), SPC supported *APC is not supported
Transmission distances (*15)		Multimode fiber　(OM3): Up to 984 ft.　(300 m) Multimode fiber　(OM4): Up to 0.62 mi. (1 km) Singlemode fiber (OS1) : Up to 2.92 mi. (4.7 km) Singlemode fiber (OS1) : Up to 6.21 mi. (10 km) (Optional)

OUTPUT BOARD SPECIFICATION

Digital scan converter output board		
Output		2 outputs (*17)
Video	HDMI / DVI	HDMI Deep Color (*18)/DVI 1.0 TMDS signal link, HDCP 1.4 TMDS clock: 25.175 MHz to 202.5 MHz, TMDS data rate: 0.755 Gbps to 6.075 Gbps Automatic input signal equalization
	Formats	VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESAHD / WUXGA / QWXGA * VESAHD / WUXGA / QWXGA are output as Reduced Blanking. 480p / 576p / 720p / 1080i / 1080p (*19)
Audio	Digital	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		1 Female DVI-I (29-pin) *Analog signals cannot be used.
Transmission distance		Up to 131 ft. (40 m) (*6)

HDBaseT scan converter output board		
Output		2 outputs (*17)
Video	HDBaseT	HDBaseT (*18) HDCP 1.4 (*16)
	Formats	VGA / SVGA / XGA / WXGA (1280x768) / WXGA (1280x800) / Quad-VGA / SXGA / WXGA (1360x768) / WXGA (1366x768) / SXGA+ / WXGA+ / WXGA++ / UXGA / WSXGA+ / VESAHD / WUXGA / QWXGA * VESAHD / WUXGA / QWXGA are output as Reduced Blanking. 480p / 576p / 720p / 1080i / 1080p (*19)
Audio	HDBaseT	Multi-channel LPCM up to 8 channels Sampling frequency: 32 kHz to 192 kHz, Sample size: 16 bit to 24 bit
Connector		RJ-45 (*8)
Cable		CAT.5E HDC, Cat5e UTP/STP, Cat6 UTP/STP (*9)
Transmission distance		Up to 328 ft. (100 m) (*10)

SFP SPECIFICATION

Item	Multimode fiber	Singlemode fiber
Wave length	850 nm (Oxide VCSEL laser (*))	1310 nm (Fabry-Perot laser (*))
Max. extension distance	OM3: 300 m, OM4: 1 km	OS1: 4.7 km
Receiver sensitivity (OMA) @10.3Gbps	-13 dBm or longer	-18 dBm or longer
Average Launch Power	-9 dBm to -2.5 dBm	-8.4 dBm to -3 dBm
Max. input power	0 dBm	+0.5 dBm
Connector	LC (Duplex)	

* The lasers in these models meet class1.

If SFP is for Singlemode fiber, we have modules which can extend up to 6.21 mi. (10 km). (OS1)

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