

Kaleido-MX

High quality, pre-configured multiviewer (up to 64 x 4)



DESCRIPTION

Pre-configured for simple and easy installation, Kaleido-MX is available in a wide choice of configurations for high-end TV production requirements in studios and outside broadcast trucks. Kaleido-MX offers reduced power consumption and a lightweight, compact design that's ultra-quiet and runs cool. With its advanced scaling technology, Kaleido-MX offers best video image quality as well as full layout flexibility to assign "any source, anywhere" with no bandwidth limitations. Kaleido-MX provides hot swappable modules and power supplies for robust performance in the harshest environments.

KEY FEATURES AND BENEFITS

Unmatched image quality

- › Unmatched multiviewer picture quality and superior on-screen graphics, for the most critical monitoring applications and high-end TV production requirements
- › Simultaneous HDMI and SDI outputs at full 1080p 50/60 Hz resolution on up to four multiviewer displays
- › Input signal processing up to 3 Gbps signal formats

Robust and serviceable design

- › Unique Auto-Recovery feature provides fast automated recovery after a "cold" spare is inserted into the frame
- › Hot swappable modules and power supplies
- › 1RU and 3RU frame models with quiet cooling

Multi-room, multi-user oriented

- › A single Kaleido-MX multiviewer can be used to share sources across multiple rooms or operator positions, with fully independent displays, audio monitoring and control panels dedicated to each operator

Seamless control across multiple multiviewers

- › Kaleido multiviewers can be "mixed-and-matched" with others to create a seamless monitoring system across a facility
- › Choice of multiple control options such as standalone RCP-2/RCP-200 panels, integrated with router control systems and panels, iControl and third-party control systems

Superior layout flexibility

- › Ultimate level of layout flexibility, with unlimited signal repetition and sizing across all displays, without blocking, grouping restrictions or bandwidth restrictions

Router and Switcher Integration

- › Kaleido-MX offers rich integration with NVISION router family, and third-party routers and production switchers for tally and label/alias source management.
- › Multiple multiviewers can be controlled from a single control panel

Scalable for the largest systems

- › Virtually limitless multiviewer system expansion with upstream NVISION router
- › Can create combined multiviewer/router system with 1152 video inputs, 288 multiviewer outputs

KALEIDO-MX: 13 PRE-CONFIGURED MULTIVIEWER MODELS



Kaleido-MX 1RU

Kaleido-MX-8x1
Kaleido-MX-8x2
Kaleido-MX-16x1
Kaleido-MX-16x2
Kaleido-MX-16x4
Kaleido-MX-24x1
Kaleido-MX-24x2



Kaleido-MX 3RU

Kaleido-MX-32x2
Kaleido-MX-32x4
Kaleido-MX-48x2
Kaleido-MX-48x4
Kaleido-MX-64x2
Kaleido-MX-64x4

Overview of input/outputs



4

4

4

64

1

28

HD-SDI



20 GPI input /
8 configurable
GPI input/output

Multiformat
reference input

Densité series IRD-3802
compressed video
(MPEG) to HD-SDI

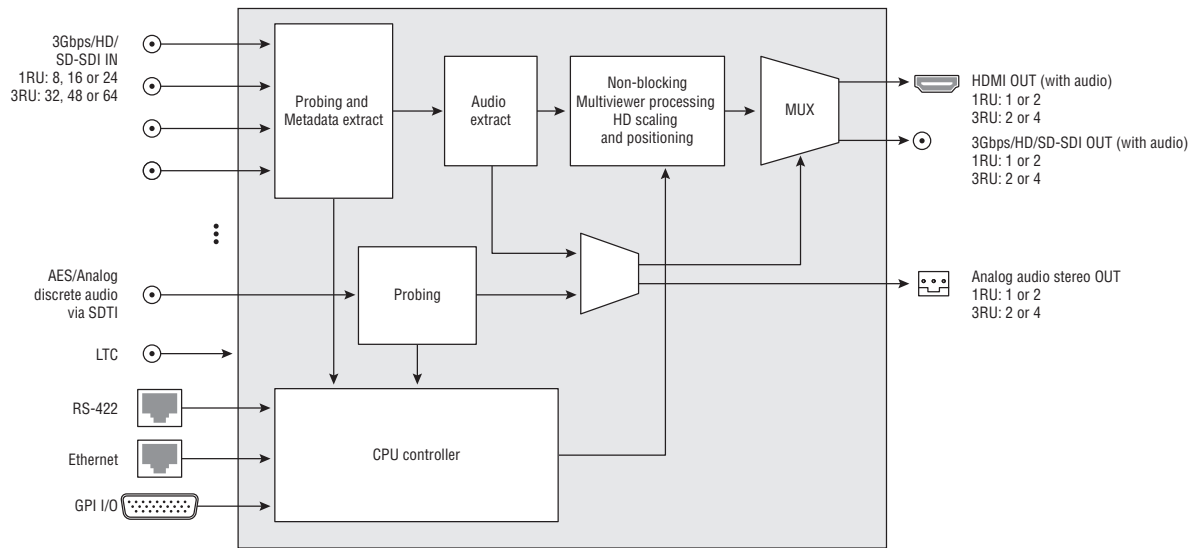
KXI-DVI-Bridge
dual channel DVI
inputs with loop out

128
Analog/AES
discrete audio inputs

grass valley
A BELDEN BRAND

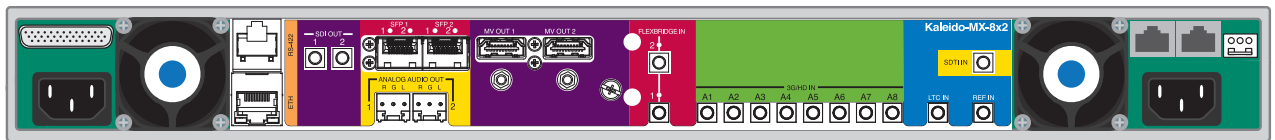
Kaleido-MX

Functional block diagram, rear panel views and specifications

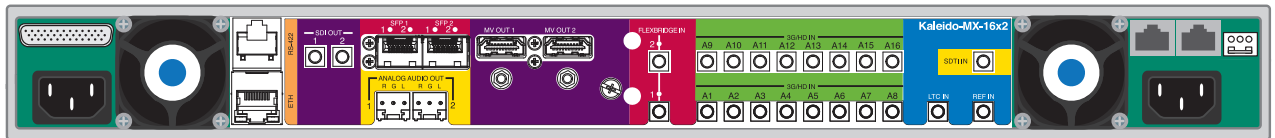


Kaleido-MX Functional Block Diagram

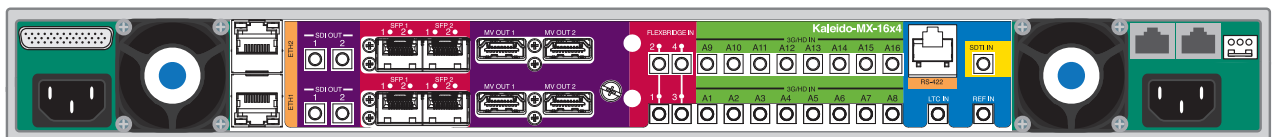
Kaleido-MX-8x2



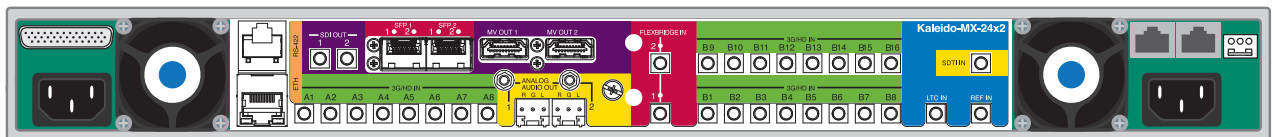
Kaleido-MX-16x2



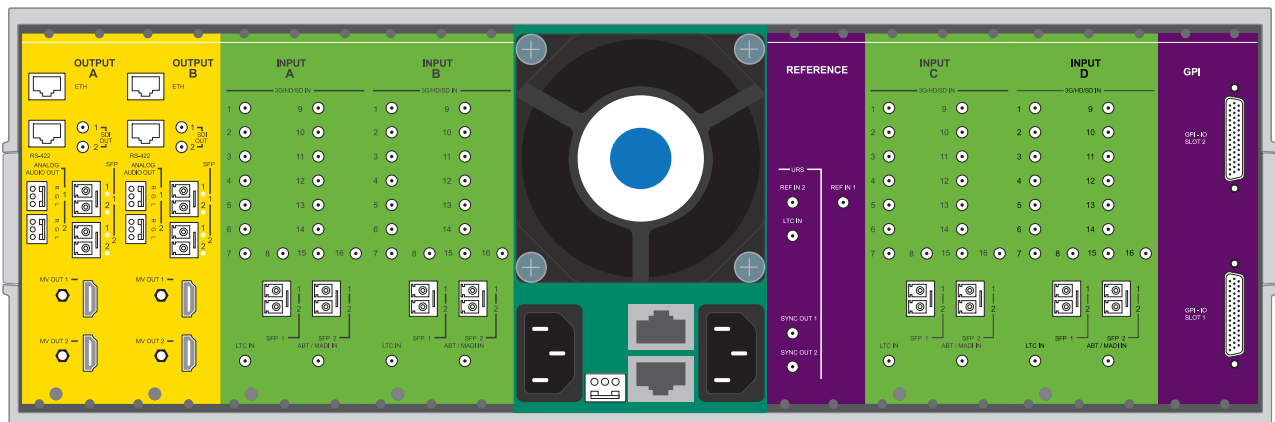
Kaleido-MX-16x4



Kaleido-MX-24x2



Kaleido-MX-64x4



TECHNICAL SPECIFICATIONS

VIDEO INPUTS (8, 16, 24, 32, 48 OR 64)

Connector: DIN 1.0/2.3

SD-SDI

Signal: 4:2:2 SMPTE 259M-C (270 Mbps)
 Formats: 525 and 625
 Audio: SMPTE 274M-1994
 Return loss: >15 dB up to 270 MHz
 Jitter: <0.2 UI
 Cable length: 250 m (820 ft) (Belden 1694A)
 150 m (492 ft) (Belden 1855A)

HD-SDI

Signal: 4:2:2 SMPTE 292M-C (1.5 Gbps)
 Formats: 720p29.97 Hz, 720p25 Hz, 720p24 Hz, 720p59.94 Hz, 720p50 Hz, 1080i59.94 Hz / 29.97 Hz (PSF), 1080p29.97 Hz, 1080i50 Hz / 25 Hz (PSF), 1080p25 Hz, 1080p23.98 Hz / 24 Hz, 1080p23.98 (PSF) / 24PSF, 1080i50 Hz
 Audio: SMPTE 299M
 Return loss: >15 dB up to 1.5 GHz
 Jitter: <0.2 UI
 Cable length: 100 m (328 ft) (Belden 1694A)
 45 m (148 ft) (Belden 1855A)

36BPS-SDI

Signal: SMPTE 424M-2006 (2.97, 2.97/1.001 Gbps) Level A and B
 Formats: 1920x1080p60, 1920x1080p59.94, 1920x1080p50
 Audio: SMPTE 299M
 Return loss: >15 dB up to 1.5 GHz
 >10 dB from 1.5 GHz to 3 GHz
 Jitter: <0.3 UI
 Cable length: 100 m (328 ft) (Belden 1694A)
 45 m (148 ft) (Belden 1855A)

LTC INPUT

Signal: SMPTE 12M-1995 (EBU-3259-E), SMPTE 309M
 Level: 500 mVp-p to 10 Vp-p
 Impedance: >10 kohm
 Refresh rate: 50/59.94 Hz
 Connector: DIN 1.0/2.3

REFERENCE

External: SMPTE 170M, SMPTE 318M, ITU 624-4, BUT 470-6, PAL and NTSC composite sync, SMPTE 274M, SMPTE 296M, SMPTE 240M
 Connector: DIN 1.0/2.3

MOSAIC OUTPUTS (VIDEO AND GRAPHIC)

HDMI (1, 2, OR 4)

Signal: HDMI V1.3
 Format: 1280x1024 up to 1920x1200p configurable
 Refresh rate supported (50 Hz and 59.94 Hz)
 Cable length: 15 ft
 Connector: HDMI
 Signal path: 8 bits output

HD-SDI (1, 2 OR 4)

Signal: 3Gbps/HD-SDI SMPTE 424M and 292M compliant
 Supports data rates of 1483.5, 1485, 2967, 2970 Mbps
 Return loss: >15 dB up to 1.5 GHz
 >10 dB from 1.5 GHz to 3 GHz
 Jitter (wideband): HD: <0.2 UI
 3 Gbps: <0.3 UI

DVI INPUTS (OPTIONAL)

Device: KXI-DVI-Bridge
 Signal: DVI
 Resolutions: Mode A: 1024x768, 1366x768, 1280x1024, 1680x1050, 1600x1200 at 60 Hz
 Mode B: 1280x720 and 1920x1080 at 50/60 Hz

COMMUNICATION

ETHERNET (1)

Signal: 10/100 BASE-T
 Connector: RJ45

SERIAL PORT (1)

Signal: RS-422 (SMPTE 207M, EBU-3245)
 Connector: RJ45

ANALOG AUDIO MONITORING (1, 2 OR 4)

Signals (2): Balanced analog stereo
 Impedance: <600 ohm
 Level: +24 dBu maximum
 Connector: WECO

VIDEO PROCESSING PERFORMANCE

Signal path: 8-bit YCbCr to 24-bit RGB
 Processing delay: 1 frame in genlock mode, 1-2 frame in non-genlock mode

AUDIO PROCESSING PERFORMANCE

Quantization: 20-24 bits
 Sampling: 48 kHz
 THD+N: 80 dB
 SNR: 98 dB

KALEIDO-MX (1RU) FRAME

Power supply: Hot swappable redundant power supplies
 Input voltage: 100-240 V
 Frequency: 50/60 Hz
 Power: 150 W max
 Dimensions: 1RU x 19 in (485 mm) x 11.25 in (286 mm)
 Full spec temperature range: 0-40 °C (ambient)
 Weight: 9.2 lb (4.2 kg) for 16x2
 Communication ports: Ethernet 10/100 BASE-T
 Alarm: GPI contact

KALEIDO-MX (3RU) FRAME

Power supply: Hot swappable redundant power supplies
 Input voltage: 100-240 V
 Frequency: 50/60 Hz
 Power: 350 W max
 Dimensions: 3RU x 19 in (485 mm) x 11.25 in (286 mm)
 Full spec temperature range: 0-40 °C (ambient)
 Weight: 10.6 lb (4.8 kg) for 32x4
 Communication ports: Ethernet 10/100 BASE-T
 Alarm: GPI contact

DISCRETE AUDIO INPUTS (OPTIONAL)

ANALOG AUDIO

Device: ABT-64A or ABT-128A
 Signals (64 or 128 mono channels): 20 kohm balanced, 10 kohm unbalanced
 Maximum level: +24 dBu
 Connectors: WECO

AES 110 OHM

Device: ABT-64D-110 and ABT-128D-110
 Signals (32 or 64 AES): AES3
 Termination: 110 ohm balanced
 Sampling: 48 kHz
 Connectors: WECO

AES 75 OHM

Device: ABT-64D-75 and ABT-128D-75
 Signals (32 or 64 AES): AES3
 Termination: 75 ohm unbalanced
 Connectors: BNC

GPI IN

Connector: DB-44
 Number of input: 1RU: 20 opto-isolated
 3RU: 20 or 40 (optional) opto-isolated
 Pull-up voltage: 2.3 V
 Source current: 2 mA when input shorted
 Low level activation: 0.8 V max
 Over voltage: 25 V max
 Pulse duration: 8 ms min

GPI BI-DIRECTIONAL

Connector: DB-44
 Number of I/O: 1RU: 8
 3RU: 8 or 16 (optional)

INPUT MODE

Pull-up voltage: 2.3 V
 Source current: 2 mA when input shorted
 Low level activation: 0.8 V max
 Over voltage: 25 V max
 Pulse duration: 8 ms min

OUTPUT MODE

Contact closure current: 50 mA max
 Reverse voltage: -15 V max
 Reverse current: -50 mA max
 V OUT low: 0.6 V at 1.5 mA

Kaleido-MX

Simple, pre-configured, easy to install multiviewer from 8 x 1 to 64 x 4

ORDERING INFORMATION

KALEIDO-MX-8X1	8 input single head multiviewer in 1RU
KALEIDO-MX-8X2	8 input dual head multiviewer in 1RU
KALEIDO-MX-16X1	16 input single head multiviewer in 1RU
KALEIDO-MX-16X2	16 input dual head multiviewer in 1RU
KALEIDO-MX-16X4	16 input quad head multiviewer in 1RU
KALEIDO-MX-24X1	24 input single head multiviewer in 1RU
KALEIDO-MX-24X2	24 input dual head multiviewer in 1RU
KALEIDO-MX-32X2	32 input dual head multiviewer in 3RU
KALEIDO-MX-32X4	32 input quad head multiviewer in 3RU
KALEIDO-MX-48X2	48 input dual head multiviewer in 3RU
KALEIDO-MX-48X4	48 input quad head multiviewer in 3RU
KALEIDO-MX-64X2	64 input dual head multiviewer in 3RU
KALEIDO-MX-64X4	64 input quad head multiviewer in 3RU

OUTPUT OPTIONS

KMX-OUT-OPT-OP2	Second head output enable license for KALEIDO-MX-8X1, KALEIDO-MX-16X1 and KALEIDO-MX-24X1
KMX-OUT-ROTATOR-S	Single head rotation license* for KALEIDO-MX-8X1, KALEIDO-MX-16X1 and KALEIDO-MX-24X1
KMX-OUT-ROTATOR-D	Dual head rotation license*. 1 license required for dual head units and 2 licenses required for quad head units.

INPUT OPTIONS

Options for blocks of 8 or 16 inputs	
KMX-IN-8-OPT-3GBPS	3 Gbps signal format license (8 inputs)
KMX-IN-16-OPT-3GBPS	3 Gbps signal format license (16 inputs)
KMX-IN-8-OPT-CSX *	CC/Subtitling and XDS data license (8 inputs) *
KMX-IN-16-OPT-CSX *	CC/Subtitling and XDS data license (16 inputs) *
KMX-IN-8-OPT-DOLBY *	License for extraction of Dolby Metadata (8 inputs) *
KMX-IN-16-OPT-DOLBY *	License for extraction of Dolby Metadata (16 inputs) *
KMX-IN-8-OPT-LOUDNESS *	Loudness level measurement license (8 inputs) *
KMX-IN-16-OPT-LOUDNESS *	Loudness level measurement license (16 inputs) *

AUDIO INPUT MODULES

ABT-64A	64 channel analog audio bridge terminal
ABT-64D-110	64 channel 110 ohm AES audio bridge terminal
ABT-64D-75	64 channel 75 ohm AES audio bridge terminal
ABT-128A	128 channel analog audio bridge terminal
ABT-128D-110	128 channel 110 ohm AES audio bridge terminal
ABT-128D-75	128 channel 75 ohm AES audio bridge terminal

POWER SUPPLIES

DENSITÉ 3+ FR1-PSU-AC	Optional redundant power supply for KALEIDO-MX 1RU models
DENSITÉ 3-PSU-AC	Optional redundant power supply for KALEIDO-MX 3RU models

ACCESSORIES

KXI-DVI-BRIDGE	Dual channel DVI to HD bridge for DVI inputs
DXF-200-B	HDMI Optical extension system for all Kaleido-MX models except the KALEIDO-MX-16X4
DXF-200-C	HDMI Optical extension system for the KALEIDO-MX-16X4
DXF-200-PSU	DXF-200 power supply (1x sub-module)
KALEIDO-RCP2	Ethernet remote control panel and KM Gateway
PSU-POE	Replacement power over Ethernet module
KRCP-RK2	Kaleido-RCP2 rack mount bracket
GPI-1501-TBA	GPI I/O terminal block adapter
GPI-1501	Additional GPI I/O module for KALEIDO-MX 3RU models
REF-1801	Redundant reference for KALEIDO-MX 3RU models

THIRD-PARTY INTERFACE OPTIONS

KMX-OPT-RT-NVISION	Control and UMD support for NVISION routers
KMX-OPT-RT-DATATEK	Control and UMD support for Datatek routers
KMX-OPT-RT-ENCORE	Control and UMD support for Encore controllers
KMX-OPT-RT-EVERTZ	Control and UMD support for Evertz routers
KMX-OPT-RT-GVG7000	Control and UMD support for GVG7000 routers
KMX-OPT-RT-JUPITER	Control and UMD support for Jupiter routers
KMX-OPT-RT-HARRIS	Control and UMD support for Harris routers
KMX-OPT-RT-NETWORK	Control and UMD support for Network routers
KMX-OPT-RT-NVISION	Control and UMD support for NVISION routers
KMX-OPT-RT-SNELL	Control and UMD support for Snell routers
KMX-OPT-RT-PESA	Control and UMD support for PESA routers
KMX-OPT-RT-UTAH	Control and UMD support for Utah routers
KMX-OPT-TLY-KAHUNA	Tally Interface for Snell and Wilcox Kahuna switchers
KMX-OPT-TLY-KALYPSO	Tally Interface for Thomson Kalypso switchers
KMX-OPT-TLY-KAYAK	Tally Interface for Thomson Kayak switchers
KMX-OPT-TLY-SONY	Tally Interface for Sony switchers (serial protocol)
KMX-OPT-TLY-SYNERGY	Tally Interface for Ross Synergy switchers
KMX-OPT-TLY-ZODIAK	Tally Interface for Thomson Zodiac switchers

* Check for availability