SEL-2XD1

Intelligent Frame Sync and Conversion with Advanced Audio Processing Capability

The Selenio™ SEL-1XD1 and SEL-2XD1 modules provide single-channel and high-density dual-channel video conversion and frame synchronization for 3G/HD/SD/3D signals. These modules are ideal for any broadcast, post-production, cable or mobile facility where processing and synchronization of NTSC/PAL, SD (480i, 576i), HD (720p, 1080i, 1080p/sf) and 3D video and audio (embedded and/or discrete) signals are required.

The SEL-1XD1 and SEL-2XD1 can retime a program signal to a local station clock for the clean processing of all synchronized signals. Signal processing functions include up/down/cross/aspect ratio and basic frame rate conversion (and optional linear frame rate conversion), processing amplifier, color correction and clipping and logo generation/insertion for single- and dual-channel applications.

The unique Rules Engine capability puts custom video and audio signal management into the hands of the user so that specially modified code does not need to be uploaded. Any video and/or audio input scenario can be detected with the user determining processing required for the output.

Features

- Single and dual-channel versions (field license key-upgradable)
- Video conversion (3D adaptive motion detection, 10-bit)
  - Up/down/cross
  - Aspect ratio
  - Frame rate (basic included, linear optional)
- Intelligent video frame and audio sync with genlock support
  - Line sync, "lock to input" and time base correction modes
  - Video noise reduction (mosquito noise reduction, sharpness and texture controls)
- Rules Engine for custom signal flow management
- 3 Gb/s and 3D support
- Audio embedder and de-embedder
- Seamless Sound functionality — audio embedding on Loss of Video
- Fast switch for clean/quiet output on hot switch at the input with no output frame freeze
- Dolby® header adjustment
- Fiber TX and/or RX SFP options
- Eight AES unbalanced ports (inputs or outputs) — balanced AES supported via digital audio expansion modules; analog audio supported via analog audio expansion modules
- 10-bit video processing
- Passing of VANC data (closed captioning, subtitling (teletext), AFD, WSS, VI, audio metadata, SMPTE 12M-2 timecode and ABC (US) Brandnet)
- Passing of entire teletext for SD aspect ratio conversion
- Up to 24 frames of SD/HD video delay and 9 frames of 3G video delay
- Ability to embed AES on output (fiber or SDI) without video source or genlock
- Ability to embed/de-embed audio metadata
- Video sandards operated:
  - NTSC, PAL-B, PAL-M
  - 525 and 625 (SMPTE 259M)
  - 1080i/p
  - 1080sf
  - 720p (SMPTE 274M/296M)
  - 3 Gb/s (SMPTE 424M) Level A/B 1080p
- Loss of video modes:
  - Black
  - Freeze
- Video processing amplifier (dual-channel version has two) with controls for:
  - Luminance gain
  - Luminance offset
  - Chrominance gain
  - Chrominance offset
  - White clip
  - Black clip
  - Hue adjustment

- Color corrector with controls (dual-channel version has two) for:
  - RGB gain
  - RGB offset
  - RGB white slope
  - RGB black stretch
  - RGB gamma
- Clipping with controls (dual-channel version has two) for:
  - RGB white clip
  - RGB black clip
- Audio processing amplifier for de-embedded and external audio channels:
  - Gain
  - Swap
  - Invert
  - Delay
  - Mix (sum)

- Built-in logo generator/inserter (single- and dual- capability), SD memory card not included (1 GB/4 GB Class 4)
- Onscreen Display (OSD) of menu parameters
- I-WINGS sidebar keying built-in using dual-channel version
- Dolby® advanced audio options for encoding and decoding
- DTS Neural Surround™ UpMix/DownMix and DTS Neural loudness control
- Video and audio test generator
- 16-, 20- or 24-bit audio processing
- C, U & V bit transparency
- Auto-detect or user-forced input video standard
- SDI connectivity to both controller modules
- 100BT (control) connectivity to both controller modules
- Four GPI inputs and four GPI outputs with user programmable scripts
- Inputs:
  - Two serial digital video/analog composite inputs
  - Two frame genlock inputs (composite or tri-level sync)
  - Eight AES ports (unbalanced); balanced and analog audio utilize expansion modules
  - DARS input (second genlock input can be used for DARS)
  - Two RS-232/422 serial ports for external metadata source
- Optional fiber dual input (SFP separately orderable)
- Outputs:
  - Two sets of two synchronized serial digital video outputs
  - Eight AES ports (unbalanced), balanced and analog audio utilize expansion modules
  - Two RS-232/422 serial port metadata outputs
  - Optional fiber dual output (x2, SFP separately orderable)
- Shadowed/restored parameter settings when switching video standards
- Ethernet remote control and monitoring (thumbnails and alarms)
- Q-SEE™ thumbnail monitoring support
- Optional MAGELLAN remote panels for control and monitoring

Details

The single- and dual-channel SEL-1XD1 and SEL-2XD1 modules offer comprehensive video and audio processing capabilities, including conversion between video formats, control over the picture, embedded audio processing and audio tracking. Full handling of the embedded audio metadata is provided, including the ability to de-embed and embed audio metadata from external sources.

The modules feature eight AES input/output ports and two 16-channel embedder/de-embedders with internal processing of 32-channels. Analog and digital audio expansion modules provide analog audio interface capability and additional AES inputs and outputs, and internal processing channels.

Back modules can accommodate a dual-fiber input SFP and two dual-fiber output SFPs.

The SEL-1XD1 and SEL-2 XD 1 modules can be controlled remotely using the standard web server element management system, CCS Navigator™ software, HTTP web server or third-party SNMP-based control applications.

For the SEL-1 XD 1 single-channel version, there is the capability to provide the output with or without OSD. For the SEL-2XD1 dual-channel version with one input signal, there is the capability to provide one output with OSD and one output without OSD. In a dual input and output configuration, the OSD may be added to one output channel.

In addition, the SEL-1XD1 and SEL-2XD1 modules are Q-SEE™-compliant, allowing for direct thumbnail monitoring when installed in a Selenio frame. For a dual-channel SEL-2XD1 module, one thumbnail is provided. If a second thumbnail is required for the second channel, a video expansion module can be added.

3DTV Functionality
The Selenio SEL-2XD1 dual-channel video converter provides left eye/right eye processing for cameras with beam splitting, including conversion, video and audio synchronization, proc amp, color correction, clipping and logo insertion. Conversions between separate left and right eye signals and frame-compatible formats are supported including side/side and over/under.

The following table highlights the standards that are supported:

QUALITY	DEFINITIONS	# OF CONNECTIONS	3DTV	
Highest	2 x 3 Gb/s 3D (2 x SMPTE 424M)	2	2 x 1080p	Production
High	3 Gb/s 3D (SMPTE 424M)	1	2 x 270p or 2 x 1080i (B), left eye/ right eye content	
High	2 x 1.5 Gb/s 3D (2 x SMPTE 292M)	2	2 x 270p, or 2 x 1080i	
Half	1.5 Gb/s 3D (1 x SMPTE 292M)	1	1/2 resolution or better (many variants)	Distribution

Front Module Connectivity
The Selenio SEL-1XD1 and SEL-2XD1 frame sync modules are interconnected with the two controller modules for SDI and 100Base-T for control and monitoring. An analog reference is available from each reference input on the back of the frame.

Video and Audio Expansion
For additional inputs and outputs and increased functionality, simply add video and audio expansion modules to the Selenio SEL-1XD1 and SEL-2XD1 video conversion application modules.

When an expansion module is installed beside an applications module, an automatic connection takes place. The corresponding block diagram in the graphical user interface is updated, giving the user setup, control and monitoring functions. Video and audio signals are automatically connected internally over bidirectional high-speed busses, eliminating the need for external cabling.

One video expansion module can be placed beside a video conversion and frame sync application module. Five back module options provide interfaces for electrical and optical inputs and outputs and relay bypass for critical signals upon power loss.

For audio expansion, up to two analog audio expansion modules and/or digital audio expansion modules can be placed beside a frame sync and conversion application module. The Advanced Audio Processing sub-module can provide additional audio processing support such as Dolby® codecs and DTS Neural Surround™ Up Mix/DownMix and DTS Neural loudness control.

When viewing the front of the frame, the video expansion is added to the left of the frame sync applications module (lower slot number). Audio expansion modules are added to the right of the frame sync applications module (higher slot numbers).

Audio Expansion Configuration
Digital and analog audio expansion modules can be added to video conversion modules in the following configurations:

AUDIO EXPANSION CONFIGURATIONS	AES INPUTS/OUTPUTS	AES INPUTS	AES OUTPUTS	ANALOG INPUTS	ANALOG OUTPUTS
Main Video and Audio Module	8	0	0	0	0
Digital Audio Expander Module	0	8	16	0	0
Analog Audio Expander Module	0	0	0	8	8
Configurations #1					
Main Video and Audio Module	8	0	0	0	0
Digital Audio Expander Module	0	8	16	0	0
Digital Audio Expander Module	0	8	16	0	0
	8	16	32	0	0
Configurations #2					
Main Video and Audio Module	8	0	0	0	0
Analog Audio Expander Module	0	0	0	8	8
Analog Audio Expander Module	0	0	0	8	8
	8	0	0	16	16
Configurations #3					
Main Video and Audio Module	8	0	0	0	0
Digital Audio Expander Module	0	8	16	0	0
Analog Audio Expander Module	0	0	0	8	8
	8	8	16	8	8

The advanced audio plug-in has the following features:

- The maximum number of advanced audio plug-ins supported is one per FS/XD and audio expansion module pair
- If the configuration has an FS or XD module, one audio expansion module and one advanced audio plug-in sub-module, the advanced audio plug-in must be installed on the FS or XD module
- If the configuration has an FS or XD module, two audio expansion modules and one advanced audio plug-in sub-modules, the advanced audio plug-in must be installed on the FS or XD module.

Back Module Connectivity

The SEL-1XD1 and SEL-2XD1 video conversion applications modules offer four choices for back module external connectivity — HD-BNC electrical connections for input and output; dual-SFP optical input with HD-BNC outputs; HD-BNC inputs with two dual-SFP optical outputs; and a dual-SFP optical input and two dual-SFP optical outputs. All four back modules provide AES-3 connections utilizing HD-BNC connectors, and GPI connections utilizing a 20-pin socket/plug connector.

SDI interfaces utilize a Belden-type 1505A, 1694A or 1695A cable (or equivalent) with HD-BNC connectors, and AES-3 interfaces utilize a Belden-type 1855 cable (or equivalent) with HD-BNC connectors. Adaptor cables and an insertion/extraction tool is provided for these types of HD-BNC connections. For optical input and output connectivity, dual-SFP receivers and transmitters can be provided with the appropriate back module.

MAGELLAN remote control panels can be set up to access all parameters for Selenio processing modules. The panels with an OLED display and rotary control add the capability to make adjustments with the rotary control and view the parameter changing and view status parameters.

Specifications

Specifications and designs are subject to change without notice

SDI VIDEO INPUTS	
3 Gb/s HD-SDI Inputs	
Number of Inputs	2
Standard	SMPTE 424M (2.97, 2.97/1.001 Gb/s), SMPTE 425 Level A, Level B-DL (YCrCb, 4:2:2, 10-bit with 16 channels of embedded audio)
Connector	HD-BNC
Impedance	75 ohms
Return Loss	>15dB, typical, from 5 to 1485 MHz >10dB, typical, from 1485 to 2970 MHz
Equalization	Adaptive cable equalization for up to 360 ft (110 m), typical, of Belden 1694A coaxial cable

1.5 GB/S HD-SDI INPUTS	
Number of Inputs	2
Standard	SMPTE 292M (1.485, 1.485/1.001 Gb/s)
Connector	HD-BNC
Impedance	75 ohms
Return Loss	>15 dB, typical, from 5 to 1485 MHz
Equalization	Adaptive cable equalization for up to 590 ft (180 m), typical, of Belden 1694A coaxial cable

SD-SDI INPUTS	
Number of Inputs	2
Standard	SMPTE 259M-C (270 Mb/s, 525/625 component video)
Connector	HD-BNC
Impedance	75 ohms
Return Loss	>20 dB, typical, from 5 to 270 MHz
Equalization	Adaptive cable equalization for up to 1230 ft (375 m), typical, of Belden 1694A coaxial cable or 902 ft (275 m), typical, of Belden 8281 coaxial cable

HD FIBER VIDEO INPUTS

Number of Inputs	2
Standard	SMPTE 292M, Mode B operation
Connector	LC
Input Wavelength	1260 to 1620 nm
Sensitivity	-22 dBm (typical), -20 dBm maximum

3 GB/S FIBER VIDEO INPUTS

Number of Inputs	2
Standard	SMPTE 424M
Connector	LC
Input Wavelength	1260 to 1620 nm
Sensitivity	-20 dBm, typical, 18 dBm maximum

COMPOSITE VIDEO INPUT

Standard	NTSC (SMPTE 170M) PAL-B (ITU 624-2)
Connector	HD-BNC
Input Level	1 V pk-pk
Impedance	75 ohms
Return Loss	>40 dB, 0.1 to 6 MHz
Common Mode Range	5 V
CMRR	60 dB @ 50/60 Hz, 5 V pk-pk

3 GB/S HD-SDI OUTPUTS

Number of Outputs	2
Standard	SMPTE 424M (2.97, 2.97/1.001 Gb/s), SMPTE 425 Level A, Level B-DL (YCrCb, 4:2:2, 10-bit with 16 channels of embedded audio)
Connector	HD-BNC
Impedance	75 ohms
Return Loss	>10 db, typical, from 5 to 2970 MHz
Signal Level	800mV $\pm$10%
DC Offset	0 V $\pm$0.5 V
Rise and Fall Time	<135 ps (20% to 80%)
Overshoot	<10% of amplitude (all outputs terminated)
Jitter	Timing jitter: <2UI pk-pk Alignment jitter: <0.3UI pk-pk

1.5 GB/S HD-SDI OUTPUTS

Number of Outputs	2
Standard	SMPTE 292M (1.485, 1.485/1.001 Gb/s)
Connector	HD-BNC
Impedance	75 ohms
Return Loss	>15 dB, typical, from 5 to 1485 MHz
Signal Level	800 mV ±10%
DC Offset	0 V ±0.5 V
Rise and Fall Time	<270 ps (20% to 80%)
Overshoot	<10% of amplitude (all outputs terminated)
Jitter	Timing jitter: <1 UI pk-pk Alignment jitter: <0.2 UI pk-pk

SD-SDI OUTPUTS

Number of Outputs	2
Standard	SMPTE 259M-C (270 Mb/s, 525/625 component video)
Connector	HD-BNC
Impedance	75 ohms
Return Loss	>20 dB, typical, from 5 to 270 MHz
Signal Level	800 mV ±10%
DC Offset	0 V ±0.5 V
Rise and Fall Time	400 to 1500 ps (20% to 80%)
Overshoot	<10% of amplitude (all outputs terminated)
Jitter	Timing jitter: <0.2 UI pk-pk Alignment jitter: <0.2 UI pk-pk

HD FIBER VIDEO OUTPUTS

Number of Outputs	2
Standard	SMPTE 292M, Mode B operation
Connector	LC
Output wavelength	1310 ±30 nm
Rise/Fall Time	60 ps, typical, 100 ps maximum
Laser Safety Level	Class 1

3 GB/S FIBER VIDEO OUTPUTS

Number of Outputs	2
Standard	SMPTE 424M, Mode B operation
Connector	LC
Output Wavelength	1310 ±30 nm
Rise/Fall Time	105/120 ps, typical, 165/180 ps, maximum
Jitter	110 ps typical, 180 ps maximum
Laser Safety Level	Class 1

AUDIO INPUTS

Unbalanced AES Input

Connector	HD-BNC
Impedance	75 ohms
Return Loss	>25 dB, 0.1 to 6.0 MHz
Sensitivity	≥100 mV
Input Audio Rate	32 to 108 kHz

AUDIO OUTPUTS

Unbalanced AES Output

Standard	AES-3, SMPTE 276M
Type	Unbalanced, AC coupled
Connector	HD-BNC
Impedance	75 ohms
Return Loss	>25 dB, 0.1 to 6 MHz
Signal Amplitude	1 V pk-pk @10% into 75 ohms load
Audio Rate	48 kHz
Rise/Fall Time	30 to 44 ns (10% to 90%)
Bits	24, 20 or 16
Channel Status/User Bit	Maintained, but professional mode, 48 kHz

COMMUNICATIONS

GPI

Connector	Multi-pin
Number of Inputs	4
Number of Outputs	4

RS-232/422

Standard	Electrical specification EIA-232C
Connector	DB9 232/422 switchable 422 termination can be selected from the menu

ELECTRICAL

Power Consumption	40 W maximum

Ordering Information

DUAL-/SINGLE-CHANNEL CONVERSION WITH ADVANCED AUDIO PROCESSING	
SEL-2XD1-EES	Dual-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter and full embedded audio processing, includes single back module with HD-BNC connectors for SDI and composite input, SDI outputs, 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-1XD1-EES	Single-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter and full embedded audio processing, includes single back module with HD-BNC connectors for SDI and composite input, SDI outputs, 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-2XD1-EOS	Dual-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter, 3D capability and full embedded audio processing, includes single back module with HD-BNC connectors for SDI and composite input, dual-SFP optical output (order two SFP dual-output option separately), 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-1XD1-EOS	Single-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter and full embedded audio processing, includes single back module with HD-BNC connectors for SDI and composite input, dual-SFP optical output (order one or two SFP dual-output option separately), 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-2XD1-OES	Dual-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter, 3D capability and full embedded audio processing, includes single back module with SFP optical input (order one SFP dual-input option separately) for SDI input, HD-BNC connectors for SDI outputs, 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-1XD1-OES	Single-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter and full embedded audio processing, includes single back module with SFP optical input (order one SFP dual-input option separately) for SDI input, HD-BNC connectors for SDI outputs, 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-2XD1-OOS	Dual-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter, 3D capability and full embedded audio processing, includes single back module with SFP optical input (order one SFP dual-input option separately) for SDI input, HD-BNC connectors for SDI outputs, dual-SFP optical output (order two SFP dual-output option separately), 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-1XD1-OOS	Single-channel video conversion front module with up/down/cross, frame rate and aspect ratio conversion, logo generator/inserter and full embedded audio processing, includes single back module with SFP optical input (order one SFP dual-input option separately) for SDI input, HD-BNC connectors for SDI outputs, dual SFP optical output (order one or two SFP dual-output option separately), 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections

DUAL-/SINGLE-CHANNEL CONVERSION WITH ADVANCED AUDIO PROCESSING — OPTIONS	
SELOPT-SK-XD	Software-keyed option for single-channel to dual-channel field upgrade of video conversion module
SELOPT-SK-SC	Software-keyed option for adding linear frame rate conversion (single channel) to the single- or dual-channel video conversion module

DUAL-/SINGLE-CHANNEL CONVERSION WITH ADVANCED AUDIO PROCESSING, FRONT MODULE ONLY	
SEL-FM-2XD1	Dual-channel video conversion, front module only
SEL-FM-1XD1	Single-channel video conversion, front module only

DUAL-/SINGLE-CHANNEL CONVERSION WITH ADVANCED AUDIO PROCESSING — BACK MODULES	
SEL-BM-FSXD-EES	Single back module for FS/XD front module with HD-BNC connectors for SDI and composite input, SDI outputs, 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-BM-FSXD-EOS	Single back module for FS/XD front module with HD-BNC connectors for SDI and composite input, dual SFP optical output (order one or two SFP dual output option separately), 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-BM-FSXD-OES	Single back module for FS/XD front module with SFP optical input (order one SFP dual-input option separately) for SDI input, HD-BNC connectors for SDI outputs, 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections
SEL-BM-FSXD-OOS	Single back module for FS/XD front module with SFP optical input (order one SFP dual-input option separately) for SDI input, HD-BNC connectors for SDI outputs, dual SFP optical output (order one or two SFP dual output option separately), 8 AES (unbalanced) input/output ports and socket/plug for 4 GPI inputs, 4 GPI outputs and 2 serial data connections

SFP DUAL-OUTPUT OPTIONS	
OP+SFP+TT+13+13	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic products; 1310 nm and 1310 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+27+29	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1270 nm and 1290 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+31+33	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1310 nm and 1330 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+35+37	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1350 nm and 1370 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+43+45	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1430 nm and 1450 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+47+49	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1470 nm and 1490 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+51+53	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1510 nm and 1530 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+55+57	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1550 nm and 1570 nm wavelength dual transmitter with pathological support for baseband video
OP+SFP+TT+59+61	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic Products; 1590 nm and 1610 nm wavelength dual transmitter with pathological support for baseband video

SFP DUAL-INPUT OPTION	
OP+SFP+RR	Small Form Factor Pluggable (SFP) for Imagine Communications Fiber Optic products; Dual PIN receiver with pathological support for baseband video

ADVANCED AUDIO PROCESSING OPTION PLUG-IN FOR FS/XD	
SELOPT-ADVAUD	Advanced audio processing sub-module for FS/XD (requires software key license option)

ADVANCED AUDIO PROCESSING SOFTWARE KEY LICENSE OPTIONS FOR FS/XD	
SELOPT-SK-DEE	1 Software key license for 1 Dolby® E encoder for FS/XD
SELOPT-SK-DED	1 Software key license for 1 Dolby® E decoder for FS/XD
SELOPT-SK-DDE	1 Software key license for 1 Dolby® Digital Pro encoder (5.1 or 2.0) for FS/XD
SELOPT-SK-DDD	1 Software key license for 1 Dolby® Digital Pro decoder (5.1 or 2.0) for FS/XD
SELOPT-SK-DTS	1 Software key license for DTS Neural Technologies option (3 software key licenses required for DTS Neural Surround UpMix or DownMix or 5.1 DTS Neural Loudness Control, 4 software key licenses required for DTS Neural Surround MultiMerge, 1 software key license required for 2.0 DTS Neural Loudness Control)

VIDEO CONVERSION PACKAGES

PKG-SEL-3-2XD	Video conversion package, 6 channels, includes 3 SEL-2XD1-EES, 1 SEL-FR3-AC-RR, 1 SELOPT-PSU-AC, 1 SELOPT-LCP
PKG-SEL-4-2XD	Video conversion package, 8 channels, includes 4 SEL-2XD1-EES, 1 SEL-FR3-AC-RR, 1 SELOPT-PSU-AC, 1 SELOPT-LCP
PKG-SEL-5-2XD	Video conversion package, 10 channels, includes 5 SEL-2XD1-EES, 1 SEL-FR3-AC-RR, 1 SELOPT-PSU-AC, 1 SELOPT-LCP
PKG-SEL-6-2XD	Video conversion package, 12 channels, includes 6 SEL-2XD1-EES, 1 SEL-FR3-AC-RR, 1 SELOPT-PSU-AC, 1 SELOPT-LCP

CABLES, ADAPTORS, CONNECTOR/TOOLS

SELOPTCAB-HD-BNC-V	HD-BNC plug to BNC jack adaptor cable for video (12 in.)
SELOPTCAB-HD-BNC-A	HD-BNC plug to BNC jack adaptor cable for audio (12 in.)
SELOPT-TOOL-CABLE	HD-BNC cable insertion and extraction tool

REMOTE CONTROL PANELS

MAGELLAN Panel with OLED Displays, Rotary Control and LCD Pushbuttons (user programmable LCD pushbuttons)

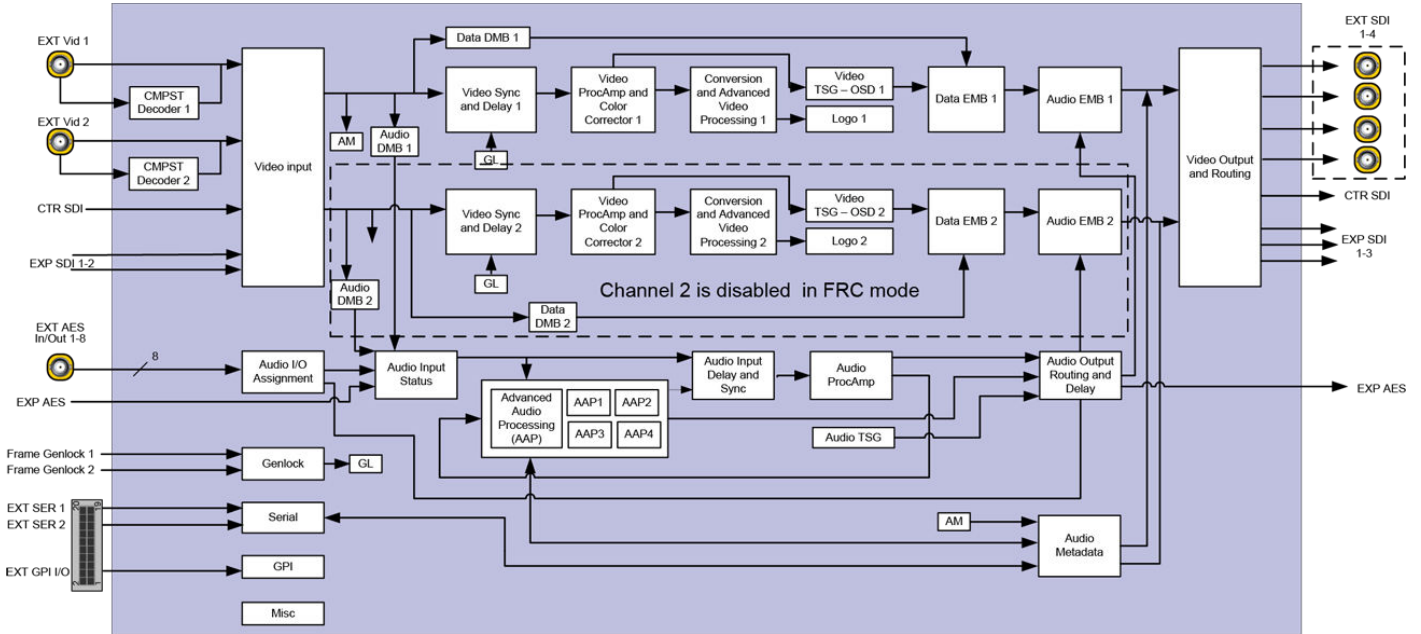|	
RCP-24LCD-OLED*	1RU control panel with 24 LCD buttons and OLED display
RCP-48LCD-OLED*	2RU control panel with 48 LCD buttons and OLED display

SOFTWARE KEY FOR MAGELLAN PANELS *

RCP-PROCMV-OPT	Software key license that enables control of Imagine Communications multiviewers and processing devices on Magellan Remote Control Panels (OLED display with LCD programmable push button and OLED display with pushbutton versions only)

Images/Diagrams
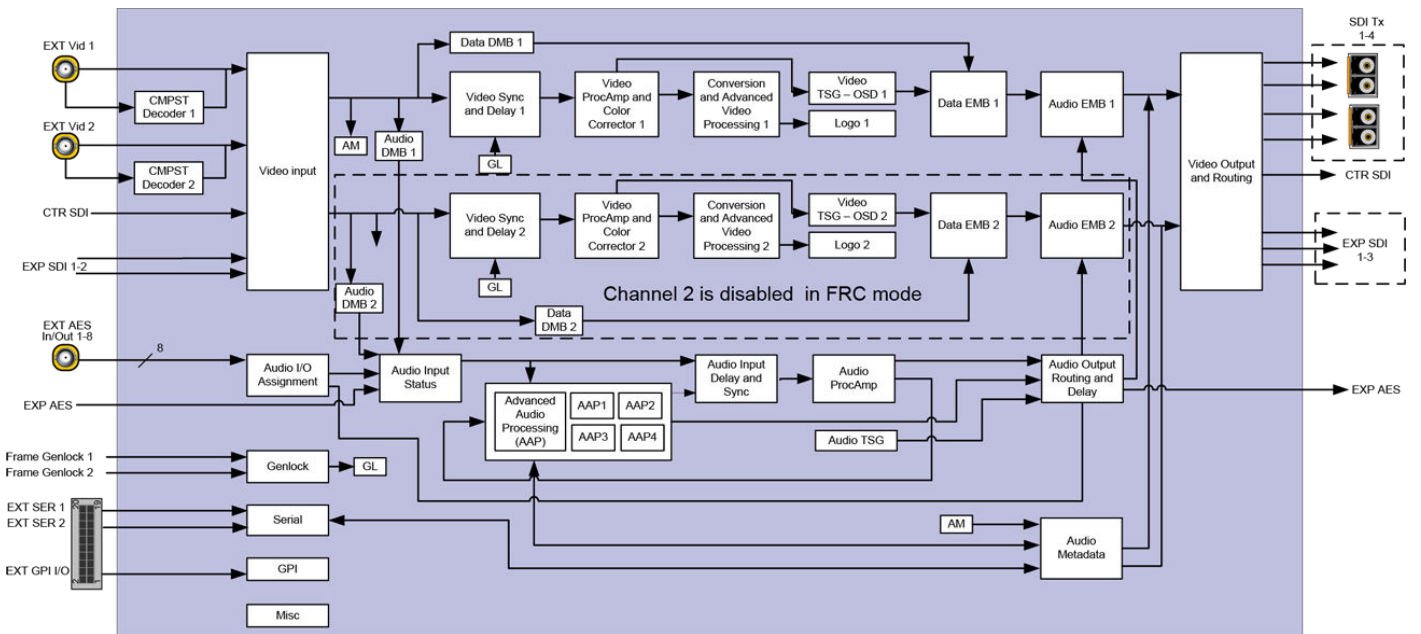
Selenio Module

Electrical to Electrical (EES)
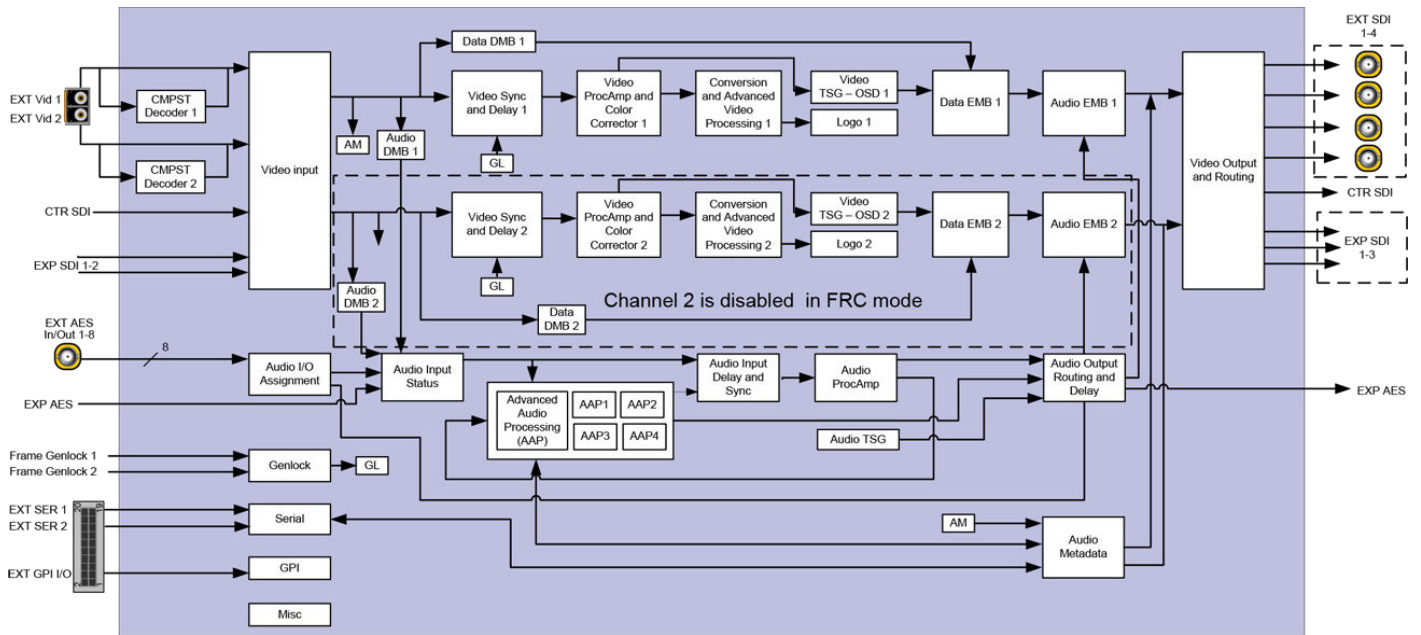

Electrical to Optical (EOS)

Optical to Electrical (OES)

Optical to Optical (OOS)

SEL-BM-FSXD-EES

SDI IN
1
2

SDI OUT
1
2
3
4

AES IN / OUT
1
2
3
4
5
6
7
8

GPI / SERIAL

SELENIO

SEL-BM-FSXD-EES
Frame Sync, Conv.
FS/XD

⚠ J

SEL-BM-FSXD-EOS

SDI
IN

1

2

SDI
Tx

1
2
3
4

1 2
3 4

AES IN / OUT

5 6
7 8

GPI / SERIAL

SELENIO

SEL-BM-FSXD-EOS
Frame Sync, Conv.
FS/XD

SEL-BM-FSXD-OES

1 SDI Rx
2

1
2
3
4
SDI OUT

1   **2**
3   **4**
AES IN / OUT
5   **6**
7   **8**

GPI / SERIAL

SELENIO
SEL-BM-FSXD-OES
Frame Sync, Conv.
FS/XD

SEL-BM-FSXD-OOS

1 SDI
2 Rx

1
2 SDI
3 Tx
4

1 2
3 4
AES IN / OUT
5 6
7 8
GPI / SERIAL

SELENIO
SEL-BM-FSXD-OOS
Frame Sync, Conv.
FS/XD