Selenio Media Convergence Platform (MCP)

Modular Solution for Video and Audio Processing, Compression and Multiplexing

As the broadcast industry continues to migrate toward IP and its inherent efficiencies, customers with less complex systems or space constraints do not have to make compromises when it comes to on-air and signal transport functionality.
Imagine's Selenio™ MCP3 and Selenio™ MCP1 – 3RU and 1RU modular platforms – combine baseband video and audio processing, compression and IP networking features in a single, space-saving solution. With Selenio MCP, customers choose modules based on specific application needs, spanning video encoding, decoding, multiplexing and processing.
Selenio MCP also delivers an on-ramp/off-ramp solution for conversion of SDI signals to IP streams and IP to SDI signals, allowing continued use of existing infrastructure for a phased, disruption-free transition to IP, while supporting hybrid domains.
Explore the Selenio Configurator Tool.

Benefits

- Combined IP and baseband workflows in a single, flexible platform, providing a high-density, space-saving processing solution
- Intuitive web-based GUI, offering easy management and control
- Integrated, seamless redundancy, supporting signal processing, compression and routing for critical broadcast paths

Features

Selenio MCP3 and Selenio MCP1:

- Video processing, advanced audio processing, compression and multiplexing in a single, flexible platform with intuitive graphical management tools
- Audio and video multiplexing and demultiplexing for compressed streams
- MPEG-2 and H.264 compression standards are supported from SD and HD to 3 Gb/s and mobile
- Inputs/outputs include analog video/audio, SD-SDI, HD-SDI, AES audio (balanced, unbalanced), fiber optics, Ethernet for control and IP video, ASI and serial data
- Standard support for thumbnails, customizable alarms and MPEG-4 streaming
- Integral fan cooling with front-to-back primary airflow; designed to support full load at 40° C ambient with no thermal stacking limitations
- Direct Ethernet connectivity (1000Base-T for control/monitoring, 1000Base-T for data) to the frame with optional redundancy

Specifications

Selenio™ MCP3:
o Dual-channel baseband modules provide 28 channels of high-density baseband video processing, including up-, down-, and cross-conversion and synchronization
o Support for up to 14 independent, single-slot modules with internal connectivity:
§ 3 Gb/s baseband connections to/from each module
§ 1 Gb/s data connection to/from each module
§ Independent control network to/from each module
o Advanced audio processing capabilities, including integrated Dolby® E, Dolby® Digital, AAC, AAC-HE, MPEG audio and DTS Neural Surround™ UpMix, DownMix and DTS Neural Loudness Control
o Hot-swappable front and back modules, and controllers

o Two external reference genlock loops; high-performance passive loop-through inputs
o Support for two hot-swappable, redundant AC or DC power supplies — each independently able to handle the complete frame power load (650 W)
o A variety of control methods to suit every operational environment: Magellan™ Control Panels, Magellan CCS™, local control panel, rich interface application (RIA) HTTP web browser or third-party control systems via published SNMP MIBs for application modules

SELENIO MCP3 FRAME
Environment Selenio MCP3 frame supports an ambient temperature of between 32° to 104° F (0° and 40°C), with a relative humidity of 10 to 90% (non-condensing). The frame can only maintain proper operating temperatures when the front panel is closed.

PHYSICAL CHARACTERISTICS	
Form Factor	3RU
Dimensions (H x W x D)	5.25 x 19 x 20.8 in. (13.3 x 48.3 x 52.8 cm) (Depth includes 0.7 in (1.8 cm) of optional SFP module and transceiver)
Power Consumption	No modules installed 90 W maximum 14 modules installed 650 W maximum

ETHERNET	
Connector	RJ-45
Standard	10/100/1000Base-T (10/100Base-T on front Ethernet port)
Differential Output Voltage	0.75 V ±0.83 dB
High Frequency Jitter	0.3 ns
CMRR	1V RMS 1 to 250 MHz
Clock Frequency	125 MHz ±0.01%

EXTERNAL REFERENCE - GENLOCK	
Connector	BNC (IEC169-8)
Impedance	75 ohms
Return Loss	>40 dB 25 Hz to 10 MHz (SMPTE 318M-1999)
Common Mode Range	5.5 V pk-pk
CMRR	60 dB @ 60 Hz, 5 V pk-pk
Input Level	NTSC/PAL-B: 1 V pk-pk, –6.0 dB to +6.0 dB Tri-level sync: ±300 mV, –6.0 dB to +6.0 dB DARS: 1 V pk-pk
Controller Module Reference Standards	525i/59.94, 625i/50, 720p/25, 720p/29.97, 720p/30, 720p/50, 720p/59.94, 720p/60, 1080i/50, 1080i/59.94, 1080i/60, 1080sF/23.98, 1080sF/24, 1080sF/25, 1080sF/29.97, 1080sF/30, 1080p/23.98, 1080p/24, 1080p/25, 1080p/29.97, 1080p/30
Standard	SMPTE 170M (NTSC), ITU-R BT.470-6 (PAL-B), SMPTE 274M (1080i, 1080p), SMPTE 296M (720p), AES3 SMPTE 276M

GPI IN/OUT	

GPI IN/OUT	
Connector	2 x 3 position screw terminal (Keystone 8739)
Input Signal Level	+5 V
Output Signal Level	±75 V with reference to GPI out common

POWER SUPPLY	
AC Power Supply	
Input Voltage Rated	100 to 240 VAC
Operating	90 to 250 VAC
Frequency Rated	50 to 60 Hz
Operating	47 to 63 Hz
Input Current Rated	9A RMS maximum
Operating	8A RMS maximum at 90 VAC with 650 W output 3A RMS maximum at 250 VAC with 650 W output
Inrush Current	40A peak maximum @ high line, hot or cold start, duration not to exceed 10 ms
Efficiency	The PSU will deliver an efficiency of no less than 86% at any net power level greater than 25% of rated output
Power Factor	>0.95 at output power >50% load @ 250 VAC input >0.95 at output power >30% load @ 90 VAC input >0.97 at 90 to 135 VAC and >0.95 at 180 to 250 VAC, typical
Harmonic Distortion	Complies with the requirements of EN61000-3-2

DC POWER SUPPLY	
Input voltage	Rated: 48 VDC Operating: 36 to 75 VDC
Output Voltages	Nominal: 12 VDC Set tolerance at 1/2 load: 11.98 to 12.02 VDC Output Programming: 10.8 to 13.2 VDC
Output Power	25 A
Transient Response	±0.60 V
Maximum Inrush	40 A cold start @ 75 VDC
Fuse Rating	40 A at 60 VDC
Hold-Up Time	1.5 ms at 48 VDC
Thermal Shutdown Protection	55° C (ambient), with auto restart

SFPs for Selenio MCP3 Frames

GIGABIT OPTICAL SINGLE-MODE (OP+SFP+SEL) LASER	
Type	LC
Average Output Power (minimum)	-9 dBm
Average Output Power (maximum)	-3 dBm
Mean Optical Wavelength	1270 to 1355 nm; 10 km range
Input Power (minimum)	-20 dBm

GIGABIT OPTICAL SINGLE-MODE (OP+SFP+SEL) LASER	
Input Power (maximum)	3 dBm
Laser Mode	Single-mode, 1310 nm FP laser
Supply voltage	3.135 to 3.465 V
Ejector	Bail actuator operating case
Temperature	-40º to 185º F (-40º to 85º C)

GIGABIT OPTICAL MULTI-MODE (OP+SFP1+TRM) LASER	
Output Power (minimum)	-9.5 dBm
Output Power (maximum)	-2 dBm
Output Center Wavelength	830 to 860 nm; 850 nm (typical)
Input Power (minimum)	-17 dBm
Input Power (maximum)	0 dBm
Optical Input Wavelength	770 to 860 nm
Line Rate	1.25/1.0625 Gbaud
Laser Mode	Multi-mode, 850 nm VCSEL
Voltage	3.3 V
Ejector	Bail actuator operating case
Operating Case Temperature	23° to 176° F (-5° to 80°C)
Applicable Standards	IEEE 802.3z 1000 Base SX specification for optical links

Selenio Frame /Controller selection table:

SELENIO FRAME P\N	AC PSU	DC PSU	EXT. REF.	CONTROLLER MODULE					LCP
				NO. OF UNITS	CONTROL (RJ-45)	VIDEO IP SM	DATA (RJ-45)	DATA (OPTICAL)	
SEL-FR3-AC-RR	1		2	1	1	No			
SEL-FR3-AC-RR-R	2		2	2	1	No			
FR3-AC-RR-IP	1		2	1	1	Yes	1		1
SEL-FR3-AC-RR-IP-R	2		2	2	1	Yes	1		1
SEL-FR3-AC-RO-IP-R	2		2	2	1	Yes		1	1
SEL-FR3-DC-RR-IP		1	2	1	1	Yes	1		1

Selenio™ MCP1:
o Dual-channel baseband modules provide up to 6 channels of high-density baseband video processing, including up-, down-, and cross-conversion and synchronization
o Support for up to 3 independent, single-slot modules with internal connectivity:
§ 3 Gb/s baseband connections to/from each module
§ 1 Gb/s data connection to/from each module
§ Independent control network to/from each module
o A variety of control methods to suit every operational environment: CCS Navigator™, local control panel, rich interface application (RIA) HTTP web browser or third-party control systems via published SNMP MIBs for application modules

POWER SUPPLY	
Input Voltage Rated	100 to 240 VAC
Operating	90 to 250 VAC
Frequency Rated	50 to 60 Hz
Operating	47 to 63 Hz
Input Current Rated	3.5A RMS maximum
Operating	3.3A RMS maximum at 90 VAC with 300 W output 1.2A RMS maximum at 250 VAC with 300 W output
Efficiency	The PSU will deliver an efficiency of no less than 86% at any net power level greater than 25% of rated output
Power Factor	>0.95 at output power >50% load @ 250 VAC input >0.95 at output power >30% load @ 90 VAC input >0.97 at 90 to 135 VAC and >0.95 at 180 to 250 VAC, typical
Harmonic Distortion	Complies with the requirements of EN61000-3-2

EXTERNAL REFERENCE - GENLOCK	
Connector	BNC (IEC169-8)
Impedance	75 ohms
Return Loss	>40 dB 25 Hz to 10 MHz (SMPTE 318M-1999)
Common Mode Range	5.5 V pk-pk
CMRR	60 dB @ 60 Hz, 5 V pk-pk
Input Level	NTSC/PAL-B: 1 V pk-pk, –6.0 dB to +6.0 dB; Tri-level sync: ±300 mV, –6.0 dB to +6.0 dB DARS: 1 V pk-pk

CONTROLLER MODULE REFERENCE	
Standard	525i/59.94, 625i/50, 720p/25, 720p/29.97, 720p/30, 720p/50, 720p/59.94, 720p/60, 1080i/50, 1080i/59.94, 1080i/60, 1080sF/23.98, 1080sF/24, 1080sF/25, 1080sF/29.97, 1080sF/30, 1080p/23.98, 1080p/24, 1080p/25, 1080p/29.97, 1080p/30
Standard	SMPTE 170M (NTSC), ITU-R BT.470-6 (PAL-B), SMPTE 274M (1080i, 1080p), SMPTE 296M (720p), AES3 SMPTE 276M

ETHERNET	
Connector	RJ-45

Standard	10/100/1000Base-T
Differential Output Voltage	0.75 V ±0.83 dB
ETHERNET	
High Frequency Jitter	0.3 ns
CMRR	1V RMS 1 to 250 MHz
Clock Frequency	125 MHz ±0.01%

GPI IN/OUT	
Connector	2 x 3 position screw terminal (Keystone 8739)
Input Signal Level	+5 V
Output Signal Level	±75 V with reference to GPI out common

PHYSICAL CHARACTERISTICS	
Form Factor	1RU
Dimensions (H x W x D)	1.75 x 19 x 24 in. (4.5 x 48.3 x 63.5cm)
Power Consumption	Fully populated 300 W maximum

Ordering Information

Selenio™ MCP3

MOUNTING FRAME	
SEL-FR3-AC-RR	Selenio 3RU Frame: 1 AC PSU, 2 external reference looping BNC inputs, 1 controller (1 RJ-45 for control/monitoring, 1 RJ-45 for data (video IP sub module required)), no control panel
SEL-FR3-AC-RR-R	Selenio 3RU Frame: 2 AC PSU, 2 external reference looping BNC inputs, 2 controllers (1 RJ-45 for control/monitoring, 1 RJ-45 for data (video IP sub module required)), no control panel
SEL-FR3-AC-RR-IP	Selenio 3RU Frame: 1 AC PSU, 2 external reference looping BNC inputs, 1 controller (1 RJ-45 for control/monitoring, 1 RJ-45 for data (video IP sub module included)), includes control panel
SEL-FR3-AC-RR-IP-R	Selenio 3RU Frame: 2 AC PSU, 2 external reference looping BNC inputs, 2 controllers (1 RJ-45 for control/monitoring, 1 RJ-45 for data (video IP sub module included)), includes control panel
SEL-FR3-AC-RO-IP-R	Selenio 3RU Frame: 2 AC PSU, 2 external reference looping BNC inputs, 2 controllers (1 RJ-45 for control/monitoring, 1 optical transceiver for data (video IP sub module included)), SFP transceiver ordered separately, includes control panel
SEL-FR3-DC-RR-IP	Selenio 3RU Frame: 1 DC PSU, 2 external reference looping BNC inputs, 1 controller (1 RJ-45 for control / monitoring, 1 RJ-45 for data (video IP sub module included)), includes control panel

MOUNTING FRAME OPTIONS	
SELOPT-LCP	Optional local control panel
SELOPT-PSU-AC	Optional AC power supply module
SELOPT-PSU-DC	Optional DC power supply module
SELOPT-CTR-RR	Optional controller module with 1 RJ-45 for control and monitoring and 1 RJ-45 for data (video IP submodule required)
SELOPT-CTR-RR-IP	Optional controller module with 1 RJ-45 for control and monitoring and 1 RJ-45 for data (video IP), video IP submodule included
SELOPT-VIDEO-IP	Optional video IP submodule for controller module
SELOPT-FAN	Spare fan

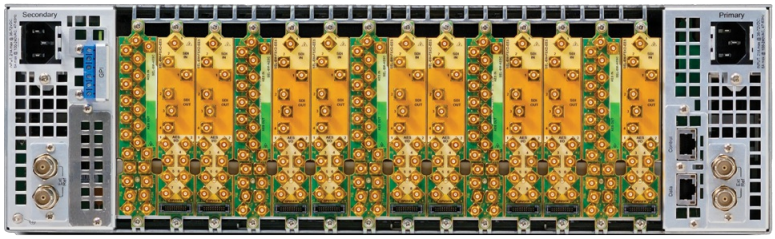
ACCESSORIES	
OP+SFP+TRMM+1G	1000BASE-SX fiber small form factor pluggable (SFP) transceiver. Up to 1.25 Gb/s bi-directional data links, up to 500m on 50/125 µm MMF, 220 m on 62.5/125 µm MMF
164-100113Q00	Spare blank back module
SELOPT-TOOL-CABLE	HD-BNC insertion/extraction tool
SELOPTCAB-HD-BNC-V	HD-BNC video adapter cable
SELOPTCAB-HD-BNC-A	HD-BNC audio adapter cable

Selenio™ MCP1

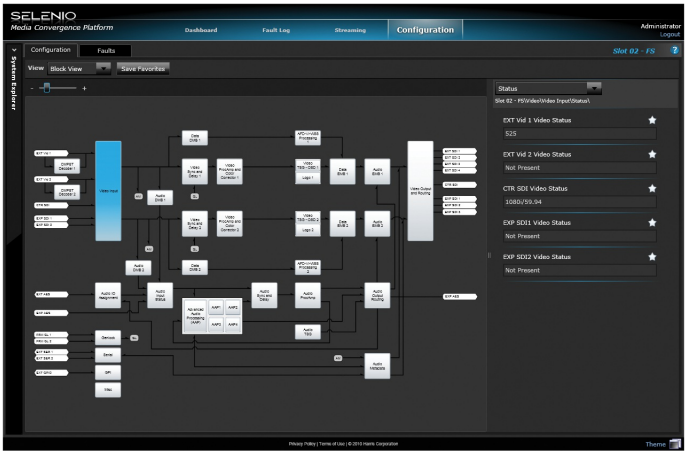
SEL-FR1-AC-RR-IP-R	Selenio MCP 1RU Frame: 2 AC PSU, 2 external reference looping BNC inputs, 1 controller (1 RJ-45 for control/monitoring, 2 RJ-45 for redundant data), includes control panel

Images/Diagrams

Hardware system for Selenio MCP3



Back panel of the Selenio MCP3 hardware



Screen capture of the software configuration

Hardware system for Selenio MCP1