CALIBRE

Fovea-F1

Motion Compensated HD/SD Frame Rate Converter
Broadcast Grade Standards Conversion & Optional Dolby E & Frame Synchronizer

Fovea-F1 **is a broadcast grade HD MEMC frame rate converter for standards & universal format conversion, computer graphics to video scan conversion and frame synchronizer with powerful MEMC FRC, noise reduction, image enhancement and aspect ratio conversion.**

Key features include content adaptive Motion Estimation Motion Compensated (MEMC) frame rate conversion as well as powerful image quality restoration capabilities.

Fovea-F1 uses a dedicated MEMC motion-processing engine with powerful hybrid MEMC algorithms combining phase plane correlation, block matching & global motion estimation for accurate high-performance motion estimation with efficient cost-effective implementation.

Fovea-F1 has a range of pre-optimized MEMC presets for key content types, making selection of optimal operating parameters easy and quick by any operator.

VITC & LTC Embedded Timecode is supported and includes automatic conversion to/from drop-frame format & video delay correction.

Closed Caption support is provided including conversion between HD CEA708 and SD CEA608 formats.

Scan conversion mode can also be used to normalize computer scan rates to video scan rates with motion compensated conversion.

Proc-amp controls for image adjustment and legalization include luma gain/contrast, luma cutoff/black level, saturation, hue, R-Y, B-Y gains and cut-offs. Y, R-Y and B-Y.

Trim, Pan and Tilt functions enable display of a particular area as is custom aspect ratio control. Pre-defined aspect ratio conversion is provided including a progressive stretch for pseudo 16:9 from 4:3 source material.

Genlock to 3G-SDI, HD-SDI, SD-SDI, tri-level or bi-level sync or black & burst

Audio support for AES and embedded audio via 3G-SDI, HD-SDI and SD-SDI with support for audio embed and de-embed. Audio delay is automatically corrected for video processing time with precise delay calibration possible with 1mS granularity.

Dolby E Option for embedded Dolby E with 16-channel audio handling, maintains accurate Dolby E audio alignment with Dolby E audio frame rate conversion. 16-Channel audio model also available without Dolby E.

- **MEMC Motion Compensated Frame Rate Conversion**

- **Real-time content adaptive MEMC algorithm combines Phase Plane Correlation, Block Matching Motion Estimation and Global Motion Estimation**

- **Video and Film Processing with Cadence Preserve/Remove/Adjust**

- **Up to 16 Field/Frame Aperture for accurate processing of complex content**

- **Wide Range of MEMC Presets for easy use with most common content**

- **Perfect for demanding content such as Sports, Action, Music Promos and Commercials. Super-high-end performance at mid-market price**

- **Dolby E Audio Frame Rate Conversion and 16-Channel Audio Options**

- Converts between all common broadcast and film frame rates, also inputs computer graphics
- Aspect Ratio Conversion & Pan/Zoom/Tilt/Trim, Logo Insertion & Safe Area Markers
- MEMC Keep-Out Zone Definition and MEMC Demo Mode
- Closed Caption support, HD CEA708 & SD CEA608 formats, VITC/LTC Embedded Timecode support
- Frame Synchronizer, Genlock to Digital or Analog house sync, Audio Embed & De-Embed, Audio Delay Correction

- Inputs: 3G-SDI, YPbPr, DVI, HDMI, Composite, S-Video and RGBHV/VGA
- Outputs: 3G-SDI, YPbPr, DVI/HDMI

- Per Pixel Motion Adaptive Temporal/Film Noise Filtering HD & SD, MPEG2 Codec Noise Reduction for SD
- System control via a front-panel LCD menu controlled using rugged front panel keys with inbuilt status indication.
- Webserver remote control via TCP/IP, integrate with third-party control systems via TCP/IP or RS232 using API.
- Dual-redundant power supply for provision of two power feeds in live-on-air applications.
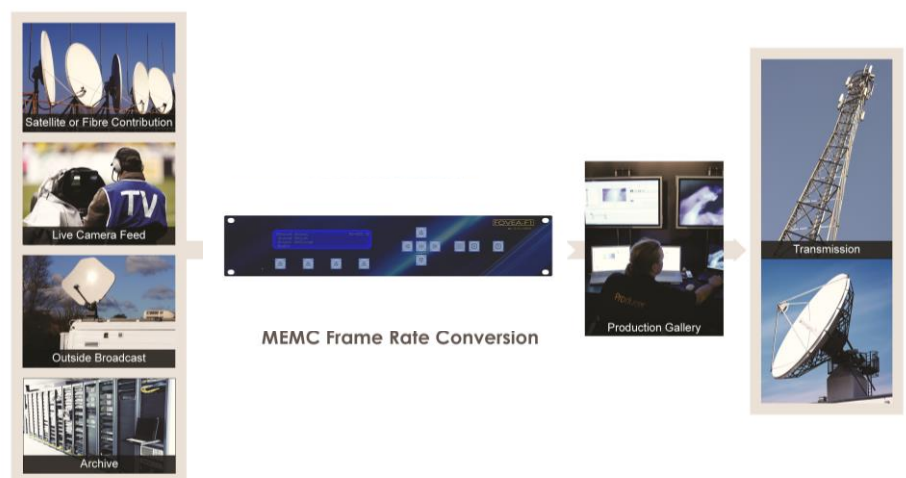
MEMC Frame Rate Conversion

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Inputs
2x 3G-SDI with automatic cable EQ, (HD-SDI & SD-SDI compatible) with embedded audio capability for 3G, HD & SD
1x HDMI with audio & deep color, HDCP compatible
1x DVI-D, HDCP compatible
1x VGA Analog graphics via 5 BNCs supports RGBHV & RGsB
2x Composite Video via BNC (NTSC/PAL/SECAM)
1x S-Video via 2x BNC (NTSC/PAL/SECAM)
1x Component video YPbPr via BNCs
4x AES 48KHz digital audio pairs via BNCs (standard audio)
8x AES 48KHz digital audio pairs video BNCs (with Dolby E or 16-Ch option)

Genlock
2x Dedicated genlock inputs:
1x 3G-SDI (HD/SD compatible) with active loop-through
1x Analog tri-level or bi-level sync or black & burst

Outputs
1x 3G-SDI (HD-SDI/SD-SDI compatible) with embedded audio for 3G, HD & SD
1x DVI-D, HDCP compatible, HDMI deep color capable, dual-function output automatically switches between DVI or HDMI to suit device connected to output
1x Component Analog YPbPr
4x AES 48KHz digital audio pairs via BNCs (standard audio)
8x AES 48KHz digital audio pairs video BNCs (with Dolby E or 16-Ch option)

NB: For non-HDCP input signals all outputs can be used simultaneously but if the input signal is HDCP encrypted then only the DVI/HDMI output is available due to HDCP licensing rules.

Closed Caption & Timecode Support
Composite, S-Video & YPbPr inputs - CC & VITC for SD only
YPbPr output – CC support only
3G/HD/SD-SDI inputs & output - CC & VITC/LTC support, HD & SD

Video Input & Output Formats
Input and Output: 480i, 576i, 720p50/59.94/60, 1080i50/59.94/60, 1080p23.97/24/25/30/50/59.94/60, 1080sfp23.97/24/25.
Input only: 2Kp23.97/24/25/30/50/59.94/60
NB: Noise reduction and unsharp mask are available for SMPTE video formats only except for 1080/2Kp50/59.94/60 and not computer modes. Some functionality only applicable to interlaced signals.

Computer Graphics Input Formats
640x480, 800x600, 852x480, 853x480, 1024x600, 1024x768, 1280x720, 1280x768, 1280x800, 1360x768, 1365x768, 1366x768, 1368x768, 1400x768, 1440x900, 1600x900, 1366x1024, 1400x1050, 1680x1050, 1600x1200, 1920x1080, 1920x1200, 2048x1080

Control
Front panel controls with character LCD display and programmable input select keys
Lockable keypad for live-on-air use
4 user configurable presets
Webserver for remote contol via TCP/IP
API-based remote control via RS232 serial port or TCP/IP
USB port for firmware update

Signal Paths
10-bit 3G/HD/SD-SDI, 10-bit ADCs for composite, S-Video
12-bit ADCs for component & VGA video
8/10/12-bit HDMI, 8-bit DVI support
All video buses are 10 bit, internal processing up to 16 bit as required by each process.

Modes of Operation
(1) MEMC Standards Conversions with image enhancement processing and filtering
(2) Motion Adaptive mode for format conversion without frame rate conversion
(3) With Dolby E option – Dolby E audio frame rate conversion

MEMC Preset Modes
Documentary, General Sport, Skiing/Winter Sports, Football/Soccer/Stadium Sports, Grand Prix/Motorsport, General Purpose, Drama, Talk & Game Show, Music & Commercial.
Advanced MEMC controls for Expert Users.

Power
Dual Redundant integral PSUs, 100-240VAC 50/60Hz, power via 2x IEC connectors. Can run on one or both PSUs. Fan cooled for installation into equipment racks
Separate PSU cooling for high reliability
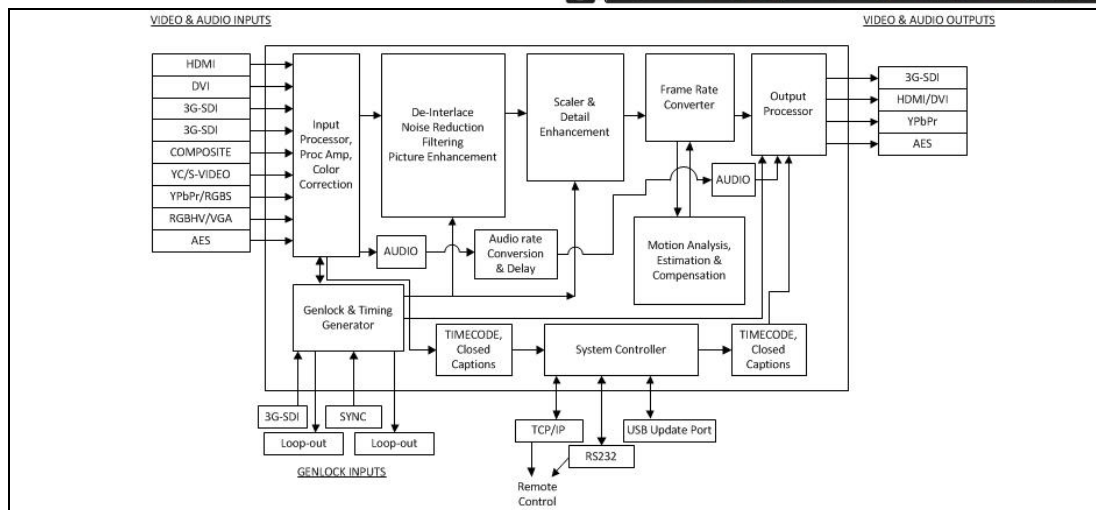Front standby/on control key with accidental switch-off protection

Mounting Information
Extremely rugged, professional 19" (2U) Rack case with carrying handles.
All connectivity via industry standard connectors, no requirement for breakout cables.

Warranty
3 Years parts & labour except Dolby E module which carries 1 Year Dolby Laboratories' warranty.

Part Nos: FOVEA-F1, FOVEA-F1A (16-Ch), FOVEA-F1D (Dolby E)

THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2012