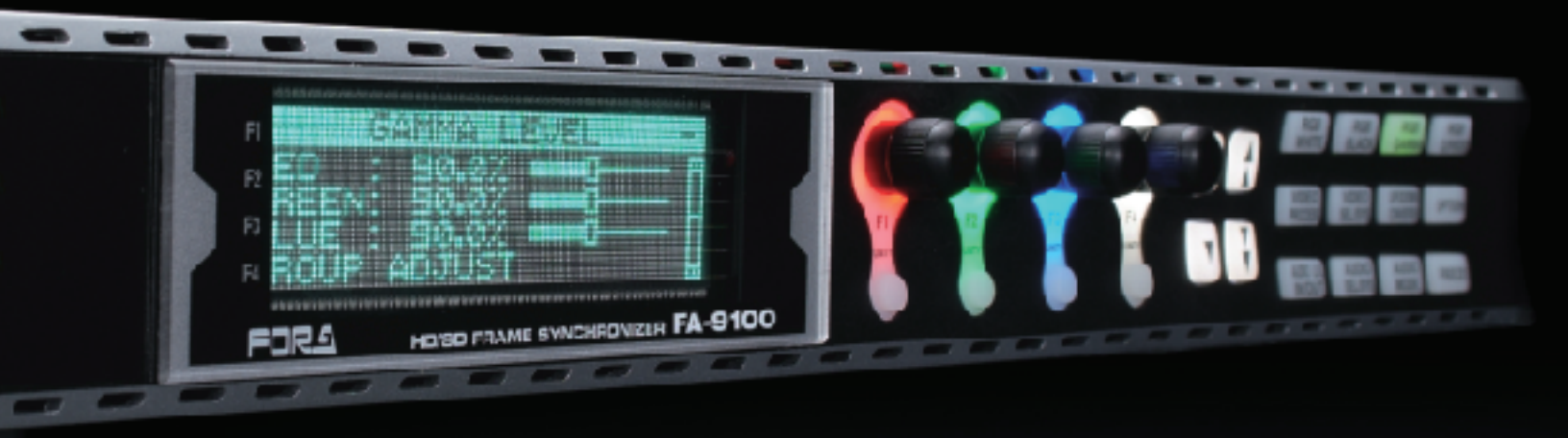
FOR.A
INNOVATIONS IN VIDEO and AUDIO TECHNOLOGY

Multi Purpose Signal Processor

FA-9100/RPS "THE Processor"



All In One

- HD-SDI
- HDV
- HD Analog Component
- SD-SDI
- DV
- SD Analog Component
- Analog Composite
- Y/C
- Embedded Audio
- Dolby E
- AES/EBU
- Analog Audio

- Frame Synchronizer
- Time Base Corrector
- Up Converter
- Down Converter
- Cross Converter
- Aspect Ratio Converter
- A/D Converter
- D/A Converter
- Audio MUX
- Audio DEMUX
- Audio Delay
- Video Delay
- Proc Amp
- Color Corrector
- Noise Reducer
- Logo Generator

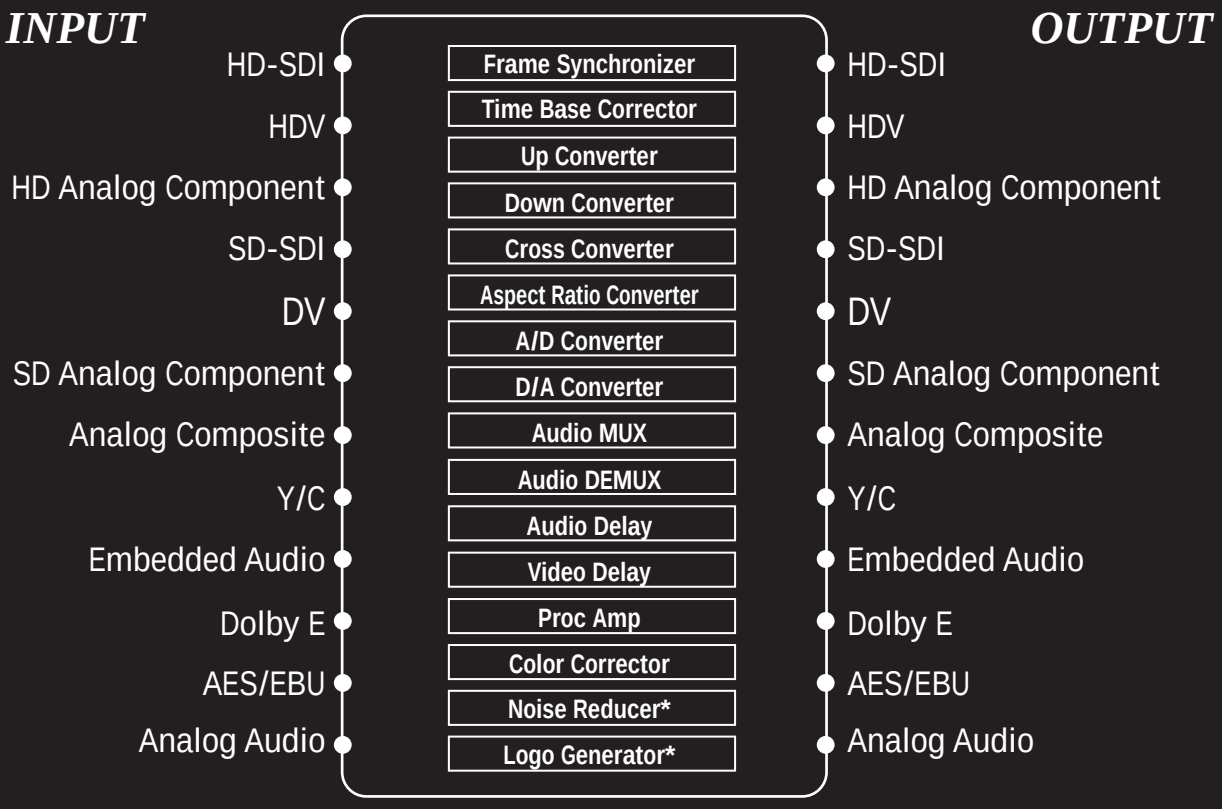
Introducing FOR-A's FA-9100/RPS, THE Processor.

Born from a long history of original technology in frame synchronization and signal processing.

Your AII IN ONE signal processor.

We are proud to introduce a new signal processor that supports all formats: HD, SD, analog, digital, plus audio. The FA-9100/RPS uses 12-bit internal processing for high quality images. The FA-9100/RPS goes beyond the realm of a typical signal processor featuring numerous options like an up-converter, down-converter, color corrector, median-based noise reduction, logo generator, Dolby E encoder and Dolby E decoder. THE Processor is the next generation multi purpose signal processor.

FA-9100/RPS Functions



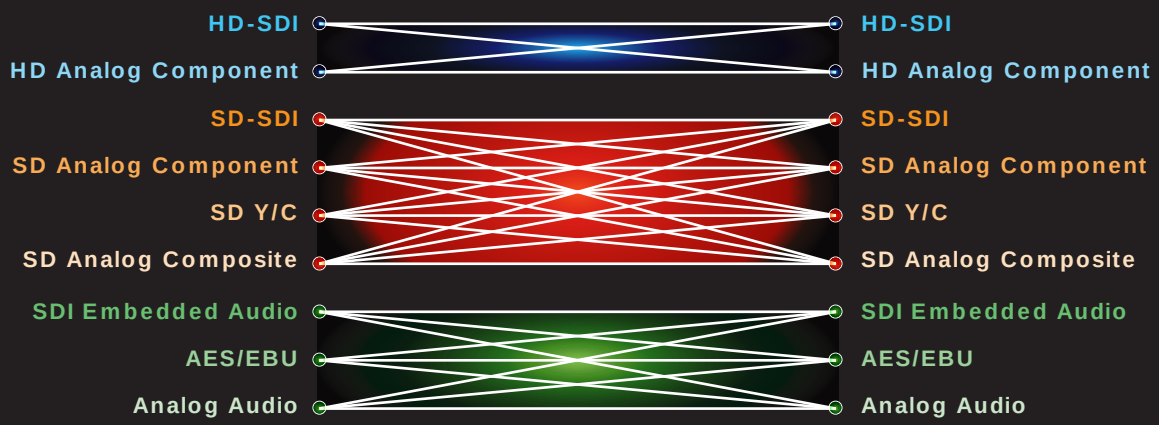
* Noise Reducer, Logo Generator functions to be released.

Input/Output of All HD, SD, Digital, and Analog Formats

The FA-9100/RPS supports all video signal formats, HD-SDI, SD-SDI, HD analog component, SD analog component, NTSC/PAL analog composite, and Y/C.

Digital/Analog Audio Support

The FA-9100/RPS provides digital or analog input/output for audio signals in the same way as it handles video signals. 8-channel support is provided for embedded audio and AES/EBU, and 4-channel support is provided for analog audio. Multi-channel audio signal processing is possible without phase differences between channels. Individual level adjustments can be made for each audio channel, and audio delay adjustment is provided for synchronizing to the video signal.



High-quality A/D Converter and D/A Converter

In the FA-9100/RPS, the input signal is converted to all video output signals that are possible. Signal conversion of all output signals by A/D or D/A is constantly performed, allowing an on-air system to have all output signals available.

Powerful Frame Synchronizer Performance

FOR-A's frame synchronizers have always exhibited superior performance when processing video with poor quality signals. The FA-9100/RPS incorporates all of this technical expertise into a single unit, developed with the highest priority on reliable frame synchronization.

Powerful Video Delay Circiut

A delay unit is incorporated that also allows adjustment of video delay in addition to audio delay. This is useful for delay adjustment with Dolby E signals and for preparing composites with computer graphics when using Virtual Studio.

2D/3D Comb Filter

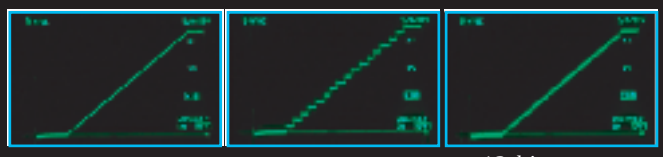
2D or 3D comb filter is available for selection during analog composite signal conversion.

FA-9100RPS: Redundant Power Supply Model

The redundant power supply model, FA-9100RPS also available.

12-bit Internal Processing for High Image Quality

The FA-9100/RPS uses 12-bit internal processing for dramatically better format conversion and A/D and D/A image quality. FOR-A use the best elements in image processing technology which enables us to provide image quality that stands out from the competition.



Original signal *8-bit process* *12-bit process*

Standard Support for SNMP Monitoring

The FA-9100/RPS has a built-in Ethernet port that provides support for network monitoring using SNMP protocol. This feature allows remote checking of device status, signal errors and other available information.

Wide Range of Remote Interfaces

Like all FOR-A FA-series models, a remote interface using a BNC connection is standard. Additionally, remote control using GPI is also supported.

Scramble Connection Support

The FA-9100/RPS supports scramble connections to allow multiple remote control units and SNMP control software to communicate with multiple main units.

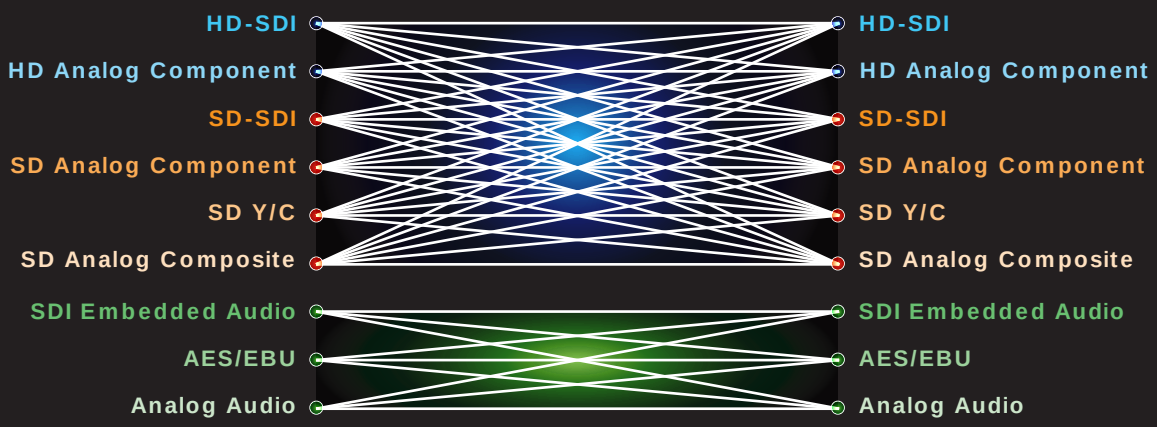
Up/Down/Cross-conversion

Up/Down/Cross-converter is optionally availble for enabling conversion of HD signals to SD, SD signals to HD, HD 1080i to 720p, and HD 720p to 1080i. With the FA-9100/RPS, there's no need to have an external up/down/cross converter.
*No frame rate conversion function is provided.

HD→HD Cross Convert	Format	Convert format
	1080/59.94i	720/59.94p
	1080/50i	720/50p
	720/59.94p	1080/59.94i
	720/50p	1080/50i

SD→HD Up Convert	Format	Convert format
	NTSC	1080/59.94i, 720/59.94p
	525/60	1080/59.94i, 720/59.94p
	PAL	1080/50i, 720/50p
	625/50	1080/50i, 720/50p

HD→SD Down Convert	Format	Convert format
	1080/59.94i	NTSC, 525/60
	1080/50i	PAL, 625/50
	720/59.94p	NTSC, 525/60
	720/50p	PAL, 625/50



HDV/DV Interface

HDV/DV encoder/decoder option available for decoding DV or HDV streams from an IEEE1394 terminal and encoding to various baseband signal DV/HDV formats.
- FA-90DV: DV interface card
- FA-90HDV: DV and HDV interface card

Dolby E Encoder/Decoder

A Dolby E encoder/decoder can be installed as an additional audio function. This option provides support for Dolby E – a surround sound distribution system by Dolby Laboratories. Dolby E signals input from an external encoder can be decoded, or internal audio signals can be encoded to Dolby E and output.
- FA-90DE-D: Dolby E decoder card
- FA-91DE-ED: Dolby E encoder/decoder card

Process Control

The standard model allows adjusting video level, chroma level, chroma phase, and setup level. Remote control of these parameters is also possible.

＜Main process cotrol fuctions＞
- Adjustment functions in Video level、Chroma level, Setup level and Chroma phase

Color Correction

In addition to the standard process control function, a color correction option is also available. Three available color correction modes (balanced, differential and sepia) with gamma correction and various clip functions are provided to enable easy reproduction of the video's original color space and range.

<Main color correction functions>
- Three color correction functions (balance, differential and sepia)
- Gamma adjustment functions in HIGH, MID and LOW tones
- White level and Black level adjustment functions
- Clip functions (Y-white, C-white, Y-black clip)

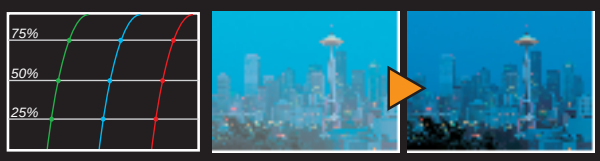
Color Correction

Balance mode:
For color correction in RGB signals.

Differential mode:
For color correction without effectiong the white balance.

Sepia mode:
For monotone color schemes.

Gamma Function



RGB independent gamma adjustment in HIGH (near 75%), MID (near 50%) or LOW (near 25%) tone.

Will be available as option

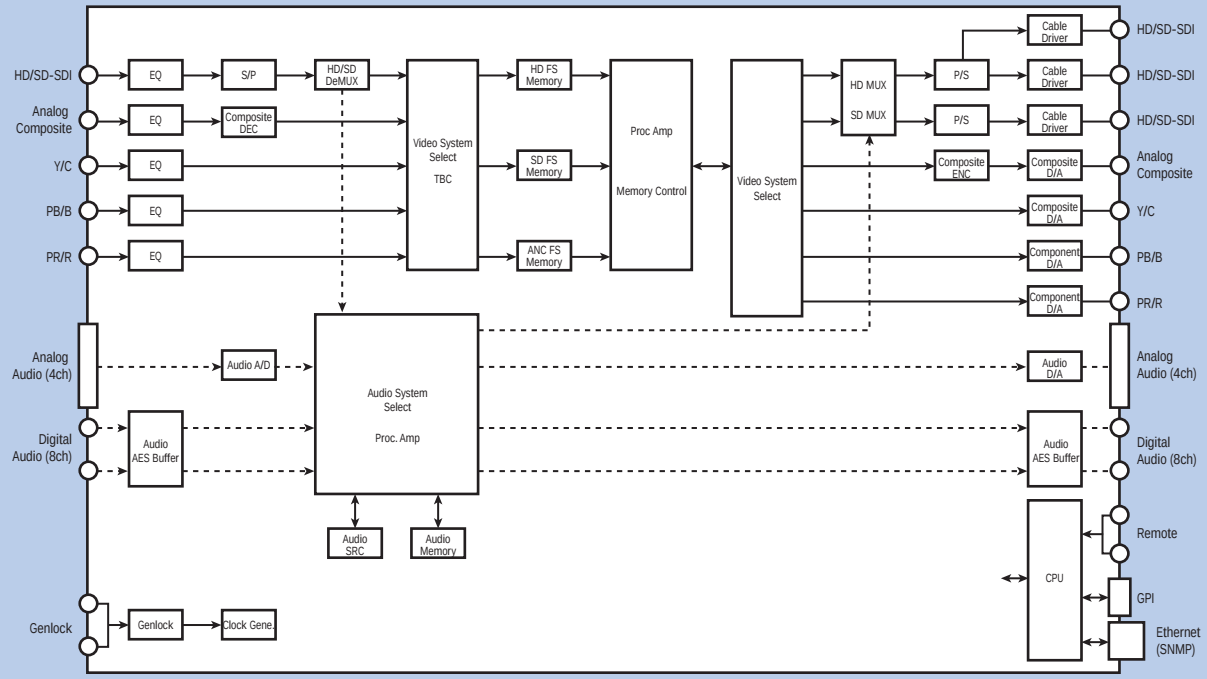
Logo Generator

An optional logo generator can be installed for insertion of company or program logos or indication credits for creative content. The FA-9100/RPS can serve as a useful tool for program branding.

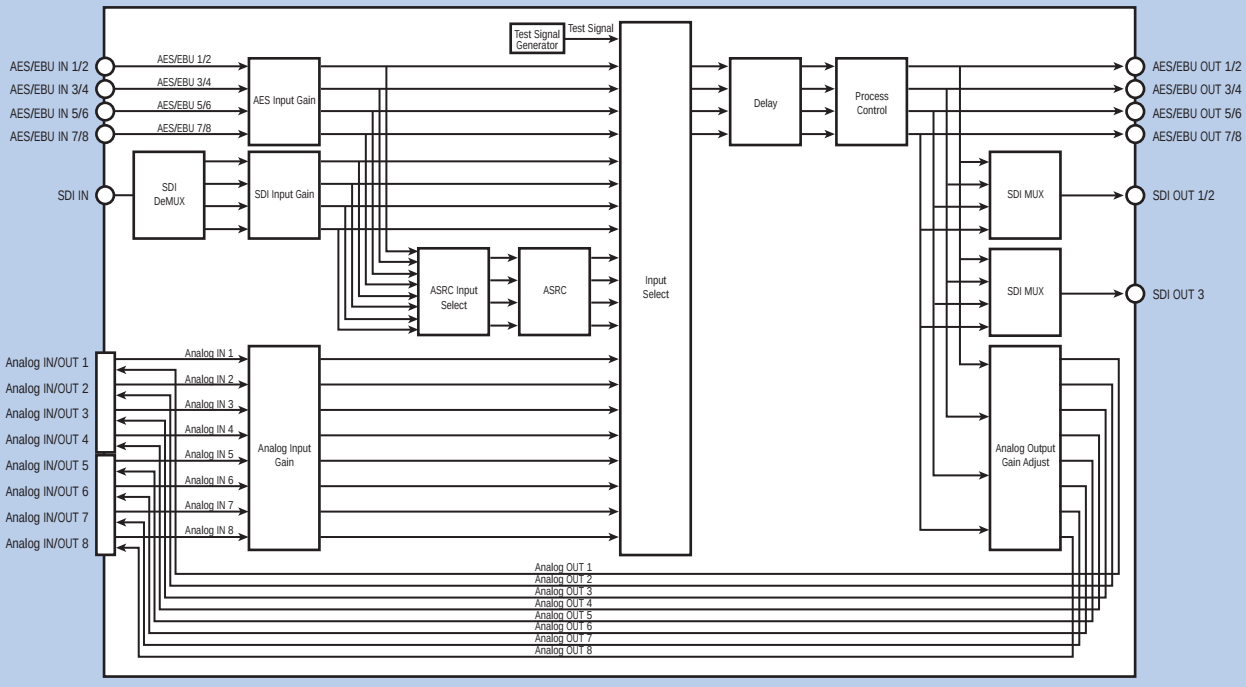
Noise Reduction

The standard model comes complete with a recursive noise reduction filter. An optional higher quality noise reduction function using a median filter can also be added. (available soon as on option). This removes only the noise while minimizing the effect on the video signal. This technique demonstrates FOR-A engineering's superior image processing technology.

FA-9100/RPS Block Diagram



FA-9100/RPS Audio Block Diagram



Specifications

●Standard	HD: 1080/59.94i, 50i, 720/59.94p, 50p (Auto detect) (Other formats to be released)
	SD: 525/60 (NTSC), 625/50 (PAL) (Auto detect)
●Video Input	HD-SDI: 1.5Gbps, 75Ω, 1 ea., BNC
	HD Analog Component: Y: 1.0Vp-p, PB/PR: 0.7Vp-p, 75Ω, 1 ea., BNC
	SD-SDI: 270Mbps, 75Ω, 1 ea., BNC
	SD Analog Component: Y: 1.0Vp-p, R-Y/B-Y: 0.757Vp-p, (Betacam or SMPTE level selectable), 75Ω, 1 ea., BNC
	SD Y/C: Y: 1.0Vp-p, C: 0.275Vp-p (NTSC)/0.3Vp-p (PAL), 75Ω, 1 ea., BNC
	SD Analog Composite: 1.0Vp-p, 75Ω, 1 ea., BNC
●Genlock Input	BB: NTSC: 0.429Vp-p/PAL: 0.45Vp-p; or Tri-level Sync: 0.6Vp-p, 75Ω, 1 ea., BNC
●Genlock Phase Control	SC Phase: ±180º / H Phase: ±0.5H / V Phase: ±562H H Position: ±0.5H / V Position: ±562H
●Video Output	HD-SDI: 1.5Gbps, 75Ω, 3 ea., BNC
	HD Analog Component: Y: 1.0Vp-p, PB/PR: 0.7Vp-p, 75Ω, 1 ea., BNC
	SD-SDI: 270Mbps, 75Ω, 3 ea., BNC
	SD Analog Component: Y: 1.0Vp-p, R-Y/B-Y: 0.757Vp-p, (Betacam or SMPTE level selectable), 75Ω, 1 ea., BNC
	SD Y/C: Y: 1.0Vp-p, C: 0.275Vp-p (NTSC)/0.3Vp-p (PAL), 75Ω, 1 ea., BNC
	SD Analog Composite: 1.0Vp-p, 75Ω, 1 ea., BNC
●Audio I/O	Digital Audio: AES/EBU or Embedded Audio
	Analog Audio: 24-bit, 48kHz sampling
Input	Embedded Audio: 2 groups (4 stereo pairs) Sampling frequency: 48kHz Quantization: 20/24-bit
	AES/EBU: unbalanced, 75Ω, 4 ea. (4 stereo pairs), BNC Sampling frequency: 32kHz/44.1kHz/48kHz Quantization: 20/24-bit
	Analog Audio: Balanced or unbalanced, 4 ea. (2 stereo pairs), 9-pin D-sub (female) Input Impedance: 600Ω/High impedance Sampling frequency: 48kHz Quantization: 24-bit
Output	Embedded Audio: 2 groups (4 stereo pairs) Sampling frequency: 48kHz Quantization: 20/24-bit
	AES/EBU: unbalanced, 75Ω, 4 ea. (4 stereo pairs), BNC Sampling frequency: 48kHz Quantization: 20/24-bit
	Analog Audio: Balanced or unbalanced, 4 ea. (2 stereo pairs), 9-pin D-sub (female) Output Impedance: less than 100Ω Sampling frequency: 48kHz Quantization: 24-bit
●Audio Delay	0ms to 360ms (adjustable in 1ms steps) Individual channel adjustment: 1) From 0-fold to 3-fold against the value. 2) In addition to 1) from 0ms to 10ms (in 0.125ms steps)
●Video Delay	0 frame to 4 frames (adjustable in 1frame steps)

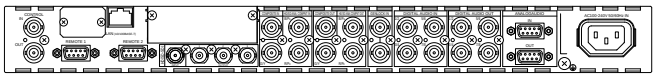
●Processing	4:2:2 component
●Correction range	2 fields (field inversion prevented)
●Quatization	12-bit, Internal process: 12-bit
●Sampling Frequency	HD: Y: 74MHz, C: 37MHz / SD: Y: 13.5MHz, C: 6.75MHz
●Frequency Response	100kHz - 4.2MHz: -0.5dB - +0.5dB, 4.2MHz - 5.0MHz: -1.0dB - +1.0dB, roll off above 5.0MHz (NTSC, composite)
	100kHz - 4.2MHz: -0.5dB - +0.5dB, 4.2MHz - 5.5MHz: -1.0dB - +1.0dB, roll off above 5.5MHz (PAL, composite)
●DG / DP	1%/ 1º (composite)
●S/N ratio	60dB (without quantization noise, composite)
●K-factor (2T-pulse)	1% (composite)
●Comb Filter	2D or 3D comb filter (selectable, composite)
●Process Control	Video level: -3dB - +3dB
	Chroma level: -3dB - +3dB
	Chroma Phase: -30º - +30º
	Setup level: -15IRE - +15IRE
●Noise Reduction	Y and C: 4 steps, motion adaptive filtering performed (Median filtering noise reduction soon as an option)
●Color Correction (Option)	Mode: balanced, differential, sepia (selectable)
	White level: 50% - 200% ea., G, B, and R
	Black level: 50% - 200% ea., G, B, and R
	Gamma level: 75% - 125% ea., G, B, and R (Adjustable from Highlight, Middle and center level)
	Y-white clip: Approx. 50% - Approx. 110%
	C-white clip: Approx. 50% - Approx. 110%
	Y-black clip: Approx. -15% - Approx. 50%
●Interfaces	Control: 2 ea. (IN/OUT), BNC
	Ethernet (SNMP): 10/100Base-T, 1 ea., RJ-45
	GPI: 7 ea., 9-pin D-sub (female), TTL negative logic level signal or make contact
●Temperature / Humidity	0ºC - 40ºC / 30% - 90% (no condensation)
●Power	100VAC - 240VAC±10%, 50/60Hz
●Consumption	FA-9100: Approx. 72VA (72W) / FA-9100RPS: Arrox. 78VA (76W) at 100VAC
●Dimensions	FA-9100: 430(W) x 44(H) x 525(D) mm, EIA1RU
	FA-9100RPS: 430(W) x 44(H) x 525(D) mm, EIA1RU
●Weight	FA-9100: Approx. 6.3kg / FA-9100RPS: Approx. 7.5kg
●Accessories	Operation manual, AC cable, Rack mount brackets
●Options	FA-90RU: Remote control unit
	FA-90GUI: SNMP Control Software
	FA-90UD: Up/Down/Cross converter
	FA-90CC: Color corrector
	FA-90DV: DV Interface card
	FA-90HDV: HDV Interface card
	FA-90DE-D: Dolby E decoder card
	FA-91DE-ED: Dolby E encoder/decoder card
	FA-90LG: Logo generator function*
	Median filtering noise reduction*

*Will be available soon

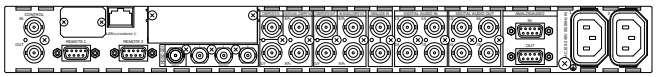
HDV and HDV logo are trademarks of Sony Corporation and Victor Company of Japan Limited (JVC).
Dolby is a registered trademark of Dolby Laboratories.

External Dimensions

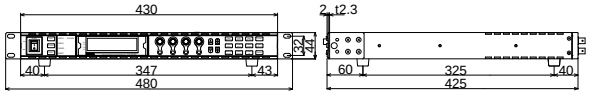
FA-9100 Rear View



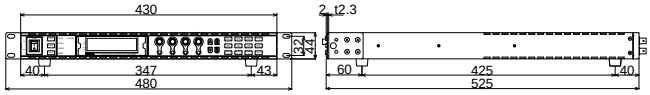
FA-9100RPS Rear View



FA-9100 External Dimensions



FA-9100RPS External Dimensions



FOR-A COMPANY LIMITED

Homepage:http://www.for-a.com/

Head Office : 3-8-1 Ebisu, Shibuya-ku, Tokyo 150-0013, Japan	+81 (0)3-3446-3936	Fax : +81 (0)3-3446-1470
FOR-A America Corporate Office : 11125 Knott Ave., Suite #A, Cypress, CA 90630, U.S.A.	+1 714-894-3311	Fax : +1 714-894-5399
FOR-A America East Coast Office : 1065 Avenue of the Americas, Suite #1701A, New York, NY 10018, U.S.A.	+1 212-861-2758	Fax : +1 212-861-2793
FOR-A America Distribution & Service Center : 2400 N.E. Waldo Road, Gainesville, FL 32609, U.S.A.	+1 352-371-1505	Fax : +1 352-378-5320
FOR-A Latin America & the Caribbean : 5200 Blue Lagoon Drive, Suite 760, Miami, FL 33126, U.S.A.	+1 305-931-1700	Fax : +1 305-264-7890
FOR-A Corporation of Canada : 425 Queen St. W. #211, Toronto, Ontario M5V 2A5, CANADA	+1 416-977-0343	Fax : +1 416-977-0657
FOR-A UK Limited : UNIT C71, Barwell Business Park, Leatherhead Road, Chessington Surrey, KT9 2NY, U.K.	+44 (0)20-8391-7979	Fax : +44 (0)20-8391-7978
FOR-A Italia S.r.l. : Viale Europa 50 20093, Cologno Monzese (MI), Milan, ITALY	+39 02-254-3635/6	Fax : +39 02-254-0477
FOR-A Corporation of Korea : 801 Dangsan Bld., 53-1 Dangsan-Dong, Youngdeungpo-Gu, Seoul 150-800, Korea	+82 (0)2-2637-0761	Fax : +82 (0)2-2637-0760

ISO 9001 JQA-QM4231

ISO 14001 JQA-EM4853