

Multi Purpose Signal Processor

FA-9100/RPS "THE Processor"



All In One

HD-SDI

HDV

HD Analog Component

SD-SDI

DV

SD Analog Component

Y/C

Analog Composite

Embedded Audio

Dolby E / Digital

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

Video Delay

Audio Delay

Proc Amp

Color Corrector

Logo Generator

Frame Rate Converter

Auto Level Controller

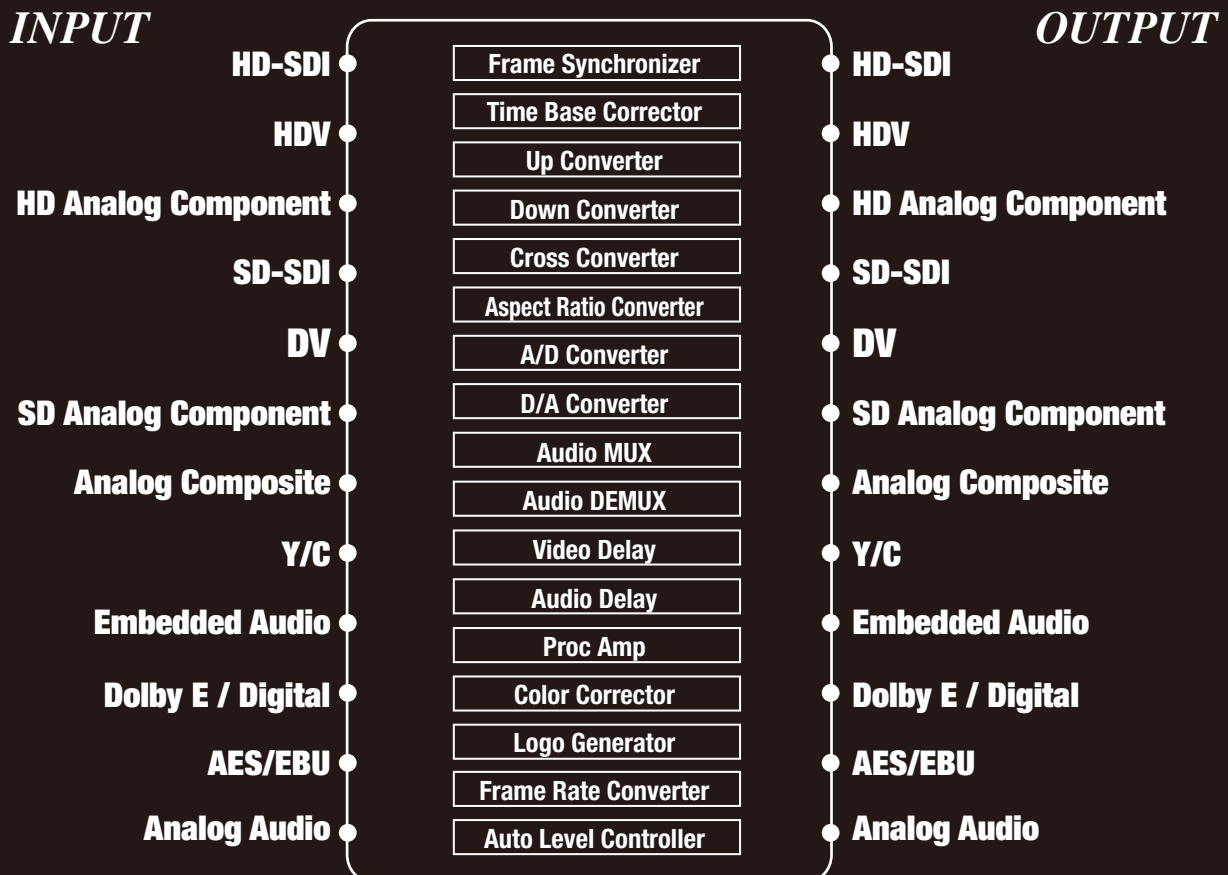
Introducing FOR-A's FA-9100/RPS, THE Processor.

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

Your ALL IN ONE signal processor.

The FA-9100/RPS supports all formats: HD, SD, analog, digital, plus audio. It 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, logo generator, Dolby E encoder and Dolby E decoder, frame rate converter, and auto level controller. THE Processor is the next generation multi purpose signal processor.

FA-9100/RPS Functions

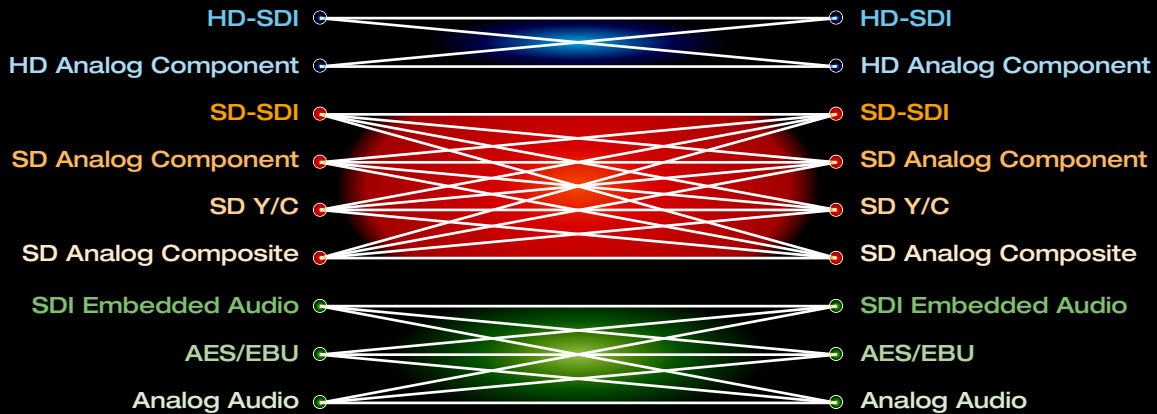


Input/Output of All HD, SD, Digital, and Analog Formats

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 and output from all output connectors in respective formats. 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 Circuit

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.



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.

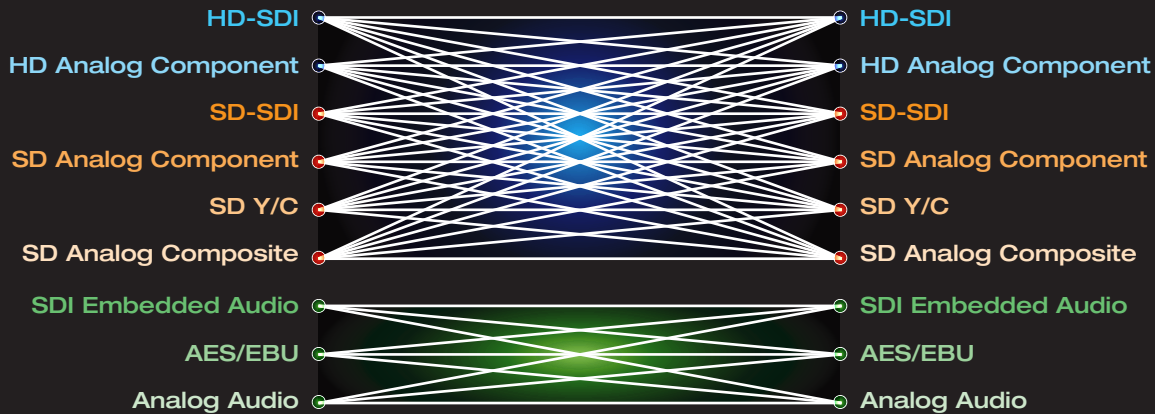
Up/Down/Cross-conversion

Up/Down/Cross-converter is optionally available 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.

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

SD HD	Format	Convert format
Up	NTSC	1080/59.94i, 1080/23.98PsF, 720/59.94p
Convert	525/60	1080/59.94i, 1080/23.98PsF, 720/59.94p
	PAL	1080/50i, 1080/24PsF, 720/50p
	625/50	1080/50i, 1080/24PsF, 720/50p

HD SD	Format	Convert format
Down	1080/59.94i, 1080/23.98PsF	NTSC, 525/60
Convert	1080/50i, 1080/24PsF	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

Process Control

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

<Proc Amp>

- Adjustment functions in Video level, Chroma level, Black 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.

Color Correction



Balance mode:
For color correction in RGB signals.

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

Sepia mode:
For monotone color schemes.

Dolby E / Dolby Digital

A Dolby E / Dolby Digital card can be installed as an additional audio function. This option provides support for Dolby E / Dolby Digital – a surround sound distribution system by Dolby Laboratories. Dolby E or Dolby Digital 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 / Dolby Digital decoder card
- FA-91DE-ED: Dolby E / Dolby Digital* encoder/decoder card
- *Dolby Digital encode is not supported

<Color Correction>

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

Gamma Function



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

FA-91LG: Logo Generator

- Includes 128MB flash memory to save up to 256 files of logo data
- Up to eight logo data in HD full size in standby
- Adjusting the position and transparency level setting
- Data transfer via Ethernet interface
- Logo management software available

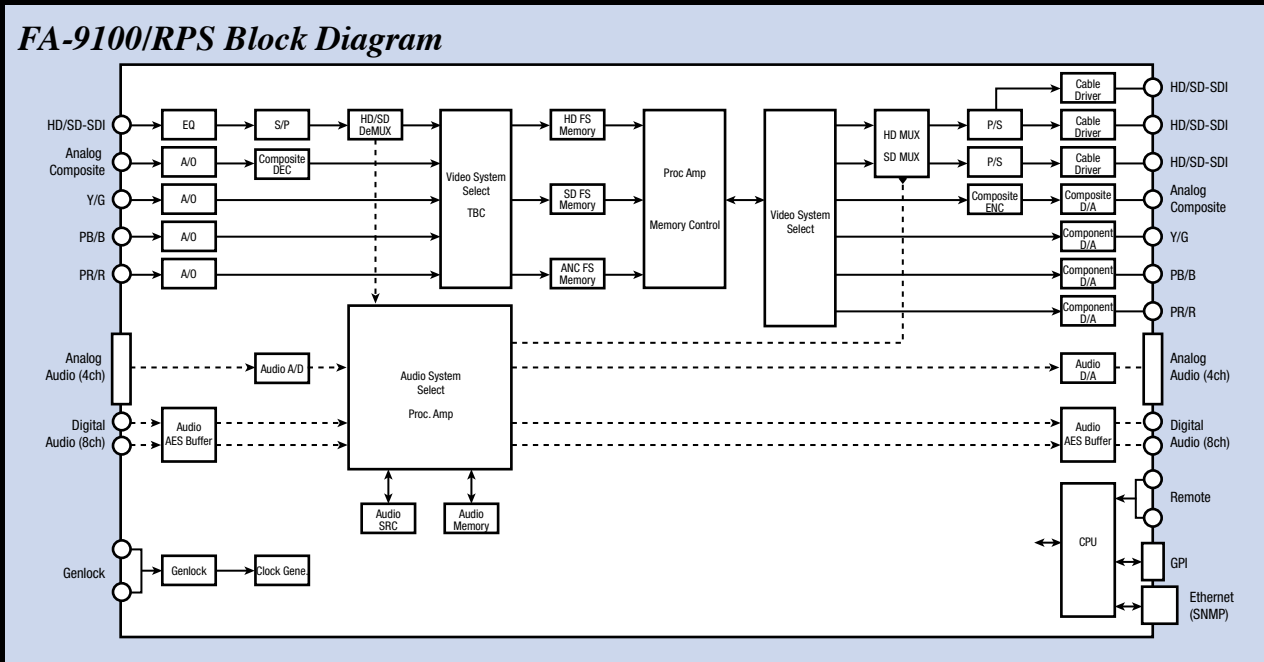
FA-91ALC: Auto Level Control

- Automatic real-time monitoring and correction of: White Level, Black Level and Gamma Curve simultaneously
- This feature allows users to auto-track the subject in video and make a perfect correction for contrast levels providing sharper and clearer picture in real-time

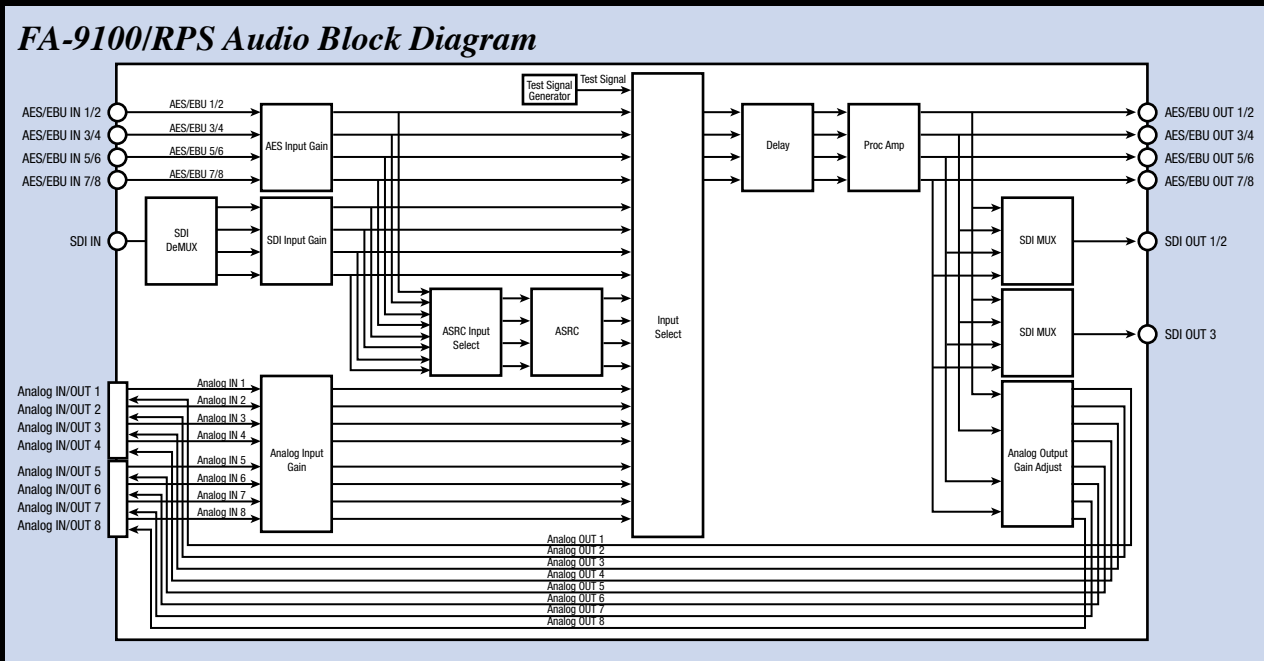
FA-91FRC: Frame Rate Converter

- Provides frame rate conversion by nearest frame method between:
 1080/59.94i, 1080/50i, 1080/24PsF, 1080/23.98PsF,
 720/59.94p, 720/50p,
 525/60, 625/50 including analog component and composite (NTSC, PAL)

FA-9100/RPS Block Diagram



FA-9100/RPS Audio Block Diagram



Specifications

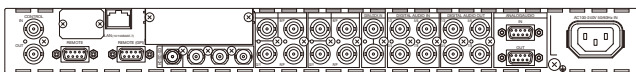
●Standard	HD: 1080/59.94i, 50i, 24PsF, 23.98PsF, 720/59.94p, 50p (Auto detect) (Other formats to be released) SD: 525/60 (NTSC), 625/50 (PAL) (Auto detect)
●Video Input	HD-SDI: 1.5Gbps, 75Ω, 1 input, BNC HD Analog Component: Y: 1.0Vp-p, Pb/Pa: 0.7Vp-p, 75Ω, 1 input, BNC SD-SDI: 270Mbps, 75Ω, 1 input, BNC SD Analog Component: Y: 1.0Vp-p, R-Y/B-Y: 0.757Vp-p, (Betacam or SMPTE level selectable), 75Ω, 1 input, BNC SD Y/C: Y: 1.0Vp-p, C: 0.275Vp-p (NTSC)/0.3Vp-p (PAL), 75Ω, 1 input, BNC SD Analog Composite: 1.0Vp-p, 75Ω, 1 input, BNC
●Genlock Input	BB: NTSC: 0.429Vp-p/PAL: 0.45Vp-p; or Tri-level Sync: 0.6Vp-p, 75Ω, 1 input, BNC
●Genlock Phase Control	SC Phase: ±180° / H Phase: ±0.5H / V Phase: ±562H H Position: ±0.5H / V Position: ±562H
●Video Output	HD-SDI: 1.5Gbps, 75Ω, 3 outputs, BNC HD Analog Component: Y: 1.0Vp-p, Pb/Pa: 0.7Vp-p, 75Ω, 1 output, BNC SD-SDI: 270Mbps, 75Ω, 3 outputs, BNC SD Analog Component: Y: 1.0Vp-p, R-Y/B-Y: 0.757Vp-p, (Betacam or SMPTE level selectable), 75Ω, 1 output, BNC SD Y/C: Y: 1.0Vp-p, C: NTSC: 0.275Vp-p/PAL: 0.3Vp-p, 75Ω, 1 output, BNC SD Analog Composite: 1.0Vp-p, 75Ω, 1 output, 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: 16-bit to 24-bit AES/EBU: unbalanced, 75Ω, 4 inputs (4 stereo pairs), BNC Sampling frequency: 32kHz/44.1kHz/48kHz Quantization: 16-bit to 24-bit Analog Audio: Balanced or unbalanced, 4 inputs (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: 16/20/24-bit AES/EBU: unbalanced, 75Ω, 4 outputs (4 stereo pairs), BNC Sampling frequency: 48kHz Quantization: 16/20/24-bit Analog Audio: Balanced or unbalanced, 4 outputs (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 1 frame steps)
●Processing	4:2:2 component
●Correction range	2 fields (field inversion prevented)

●Quantization	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% / 1° (composite)
●S/N ratio	60dB (without quantization noise, composite)
●K-factor (2T-pulse)	1% (composite)
●Comb Filter	2D or 3D comb filter (selectable, composite)
●Proc Amp	Video level: 0% - 200% Chroma level: 0% - 200% Black level: -20% - 100% Chroma Phase: -179.8° - 180°
●Noise Reduction	Y and C: 4 steps, motion adaptive filtering performed
●Color Correction (FA-90CC option)	Mode: RGB (balanced), YPbPr (differential), Sepia White Level (RGB): 0% - 200% (referring to input signal) Black Level (RGB): 0% - 200% (referring to input signal) Gamma Level (RGB): 0% - 200% (referring to input signal) Gamma Curve: 3 types (Center, Black, White)
●Color Gamut Control (FA-90CC option)	Clip Mode: YBR clip, GBR clip, VBS clip
●Interfaces	CONTROL (IN/OUT): 2 ports, BNC (for FA-90RU connection, cascading available) REMOTE (RS-422): 1 port, 9-pin D-sub (female) REMOTE (GPI): 1 port, 9-pin D-sub (male), Make contact, 7-input/output LAN 1 (10/100BASE-T): RJ-45, 1 port (for SNMP connection) LAN (10/100BASE-T): RJ-45, 1 port (for receiving logo source data)
●Temperature / Humidity	0°C - 40°C / 30% - 90% (no condensation)
●Power	100VAC - 240VAC ±10%, 50/60Hz
●Consumption	FA-9100: Approx. 89W (at 100 - 120VAC), 84W (at 220 - 240VAC) FA-9100RPS: Approx. 88W (at 100 - 120VAC), 86W (at 220 - 240VAC)
●Dimensions	FA-9100: 430 (W) x 44 (H) x 425 (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: DV/HDV interface card FA-90DE-D: Dolby E decoder card FA-91DE-ED: Dolby E encoder/decoder card FA-91LG: Logo generator FA-91FRC: Frame rate converter FA-91ALC: Auto level control

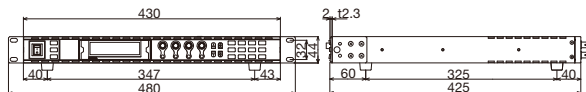
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External Dimensions

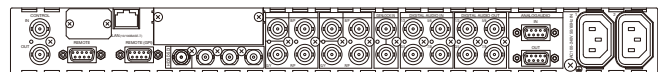
FA-9100 Rear View



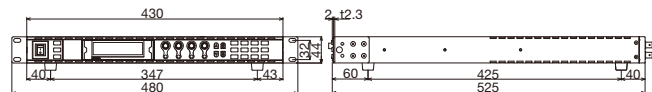
FA-9100 External Dimensions



FA-9100RPS Rear View



FA-9100RPS External Dimensions



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