

# 12G/3G/HD/SD FRAME RATE CONVERTER **FRC-9100**

Enhanced operation and expandability at affordable pricing  
 Capable of 4K support using optional software



- | 3G/HD/SD multi-format support
- | SD to 3G/HD up conversion
- | Conversion with motion compensation processing
- | Interlace-to-Progressive conversion
- | Timecode (LTC/VITC) conversion
- | 4K (UHD, SQD/2SI) and 12G-SDI support (Optional)
- | Up/down/cross frame rate conversions between 4K and HD (Optional)
- | Simultaneous conversion of 2-channel video inputs (Optional: when using 3G/HD-SDI)

## 4K/HD multi-format supported.

Simultaneous conversion of 2-channel video inputs also available with option.

- | 1-ch HD IN distributed to 4 HD OUT



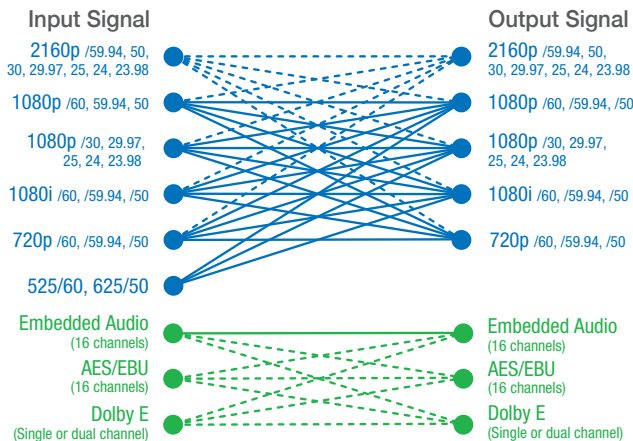
- | Simultaneous conversion of 2 HD channels (Optional)



- | 4K SQD support (Optional)



## Various frame rate conversion



## Other features

- | Scene cut detection
- | Scroll text detection/conversion
- | Genlock
- | Front touch panel and web browser control
- | 16-channel AES/EBU I/O (48kHz,24-bit : Optional)
- | FRC-90DA (Optional): AES/EBU digital audio
- | FRC-90DM\* (Optional): Dolby E 2-channel encoder/decoder

\*required FRC-90DA mounted

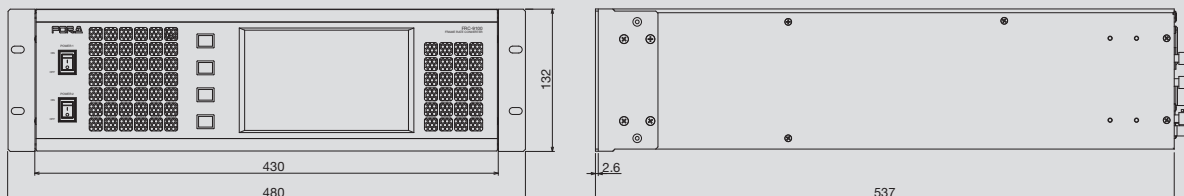
## Specifications

|                                  |   |  |
|----------------------------------|---|--|
| Video format                     | HD: 1080p/60, 59.94, 50 (Level-A/B)<br>1080i/60, 59.94, 50<br>SD: 525/60, 625/50  | 1080p/30, 29.97, 25, 24, 23.98<br>720p/60, 59.94, 50   |
| Video format (FRC-904K)          | 4K: 2160p/59.94, 50 (12G-SDI Level-A, 2SI / quad link 3G-SDI, Level-A/B, SQD/2SI)<br>2160p/30, 29.97, 25, 24, 23.98 (quad-link HD-SDI, SQD)   |  |
| Frame rate conversion            | 1080p, 1080i, 720p/60, 59.94, 50 ↔ 1080p, 1080i, 720p/60, 59.94, 50<br>1080p/30, 29.97, 25, 24, 23.98 ↔ 1080p, 1080i, 720p/60, 59.94, 50, 1080p/30, 29.97, 25, 24, 23.98<br>525/60, 625/50 → 1080p, 1080i, 720p/60, 59.94, 50, 1080p/30, 29.97, 25, 24, 23.98 |  |
| Frame rate conversion (FRC-904K) | 2160p/59.94, 50, 30, 29.97, 25, 24, 23.98 ↔ 2160p/59.94, 50, 30, 29.97, 25, 24, 23.98<br>2160p/59.94, 50, 30, 29.97, 25, 24, 23.98 ↔ 1080p, 1080i, 720p/60, 59.94, 50, 1080p/30, 29.97, 25, 24, 23.98   |  |
| Video Inputs                     | 12G-SDI: 12 Gbps 75Ω BNC x 1 (can be used with FRC-904K option)<br>3G/HD/SD-SDI: 3 Gbps/1.5 Gbps/270Mbps 75Ω BNC x 4  |  |
| Video Output                     | 12G-SDI: 12 Gbps 75Ω BNC x 2 (can be used with FRC-904K option)<br>3G/HD-SDI: 3 Gbps/1.5 Gbps 75Ω BNC x 4<br>Pass-through input to output is possible (relay circuit)   |  |
| I/O delay                        | +5 to +1000 ms (depending on input/output formats) (Ex: I/O delay when converting from 1080/59.94i to 1080/50i: Approx. 105 ms)   |  |
| Quantization                     | 12G/3G/HD/SD-SDI: Y: 10-bit, C: 10-bit  |  |
| Genlock input                    | BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p or Tri-level sync: 0.6 Vp-p, 75Ω or loop-through, BNC x 2 (Terminate with 75Ω terminator, if unused.)   |  |
| Audio Input                      | Embedded audio:   | 12G/3G/HD-SDI: 4 groups (16 channels) per input, 48 kHz 16-bit to 24-bit, synchronous/asynchronous<br>SD-SDI: 3 groups (12 channels) per input, 48 kHz 16-bit to 24-bit, synchronous/asynchronous  |
| Audio Input (FRC-90DA)           | AES/EBU:<br>Metadata input:<br>Reference input:   | 1.0 Vp-p unbalanced 16 stereo pairs, 32/44.1/48 kHz, 16-bit to 24-bit, 75Ω, BNC x 16<br>9-pin D-sub (female) x 2<br>BB: NTSC: 0.429 Vp-p/PAL: 0.45 Vp-p or Tri-level sync: 0.6 Vp-p, 75Ω, BNC x 2  |
| Audio Output                     | Embedded audio:   | 12G/3G/HD-SDI: 4 groups (16 channels) per output, 48 kHz, 16-/20-/24-bit, synchronous/asynchronous   |
| Audio Output (FRC-90DA)          | AES/EBU:<br>Metadata output:<br>Audio delay adjustment:<br>Gain adjustment:<br>Audio processing:  | 1.0 Vp-p unbalanced 16 stereo pairs, 48 kHz, 16-/20-/24-bit, 75Ω, BNC x 16<br>9-pin D-sub (female) x 2<br>+5 to +1000 ms (in 1 ms step) for each channel<br>-20 dB to +20 dB (in 0.1 dB step) for each channel<br>SRC (Sample Rate Converter), Down mix, Chanel re-mapping, Channel mute |
| Ancillary data                   | Audio data, Audio metadata embedding/de-embedding   |  |
| Interface                        | LAN   | 100BASE-TX/1000BASE-T RJ-45 1 port (for web browser and Dolby Metadata Configure GUI connections)  |
| Temperature/Humidity             | 0°C to 40°C/30% to 85% (no condensation)  |  |
| Power                            | 100 V AC to 240 V AC, 50/60 Hz (redundant power supply unit as standard)  |  |
| Power consumption                | 548 VA (542 W) at 100 V, 566 VA (504 W) at 240 V  |  |
| Dimensions/Weight                | 430 (W) x 132 (H) x 537 (D) mm/FRC-9100: 20.5 kg, FRC-90DA: 2.4 kg  |  |
| Accessories                      | Rack mount brackets, AC cord x 2, CD-ROM (operation manual)   |  |
| Consumables                      | Power unit: replace every 5 years (at room temperature), Cooling fan: replace every 4 years (at room temperature)   |  |
| Options                          | FRC-90DA: AES/EBU digital audio, FRC-90DM: Dolby E 2-channel encoder/decoder, FRC-902C: 3G/HD-SDI 2ch option, FRC-904K: 4K option   |  |

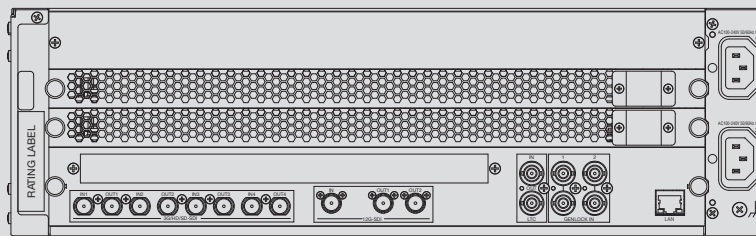
\* Dolby is a registered trademark of Dolby Laboratories.

### External Dimensions

Unit: mm



### Rear Panel



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ISO 9001 and 14001 certified (Sakura R&D)

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