

Multi-Channel Signal Processor

FA-505 "THE Processor"

FORA[®]

MULTI-CHANNEL SIGNAL PROCESSOR

FA-505

THE PROCESSOR



All-Round frame synchronizer

The FA-505 is a frame synchronizer equipped with the various functions you need for video production and that enables multi-channel routing (5 video inputs and 5 video outputs).

It supports 3G-SDI and HD/SD-SDI input/output as standard and naturally includes all the typical features of a frame synchronizer as well as a color corrector (standard) enabling up/down/cross conversion of a variety of video signals. For audio signal processing, it is highly versatile with delay adjustment and remapping functions plus a sampling rate converter. By combining these varied options, a single unit can provide the optimal functionality for all video production scenes, including transmission, outside broadcasting, news reporting, production, editing and distribution.

Ready for 4K (UHD)

Supports video payload ID

Automatically detects 3G-SDI Level-A, Level-B (Dual Link) and Level-B (Dual-Stream) in input signals. A video payload ID is added to output signals to suit the video format.

HDR compatible*1

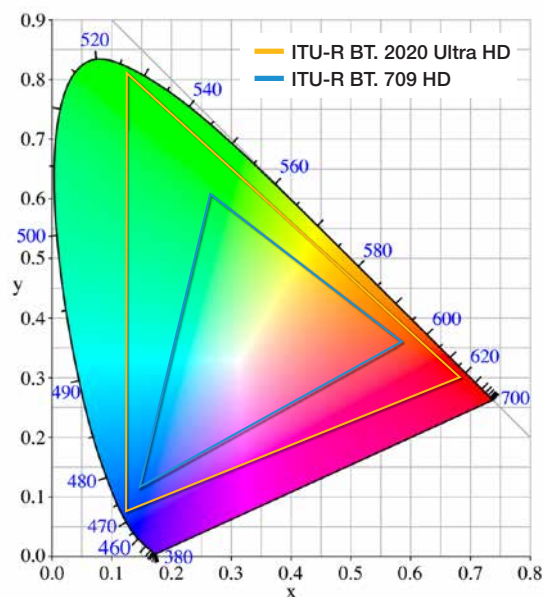
HDR, with a wider dynamic range than standard video, is also supported. Video is processed while maintaining this high dynamic range. Bidirectional conversion between SDR and HDR material is also possible.

*1 Not compatible with OOTF for Hybrid Log-Gamma (HLG) as specified in BT.2100. Thus, in conversion between HLG and other gamma curves (SDR or SMPTE ST 2084), scene-referred conversion is available but not display-referred conversion.

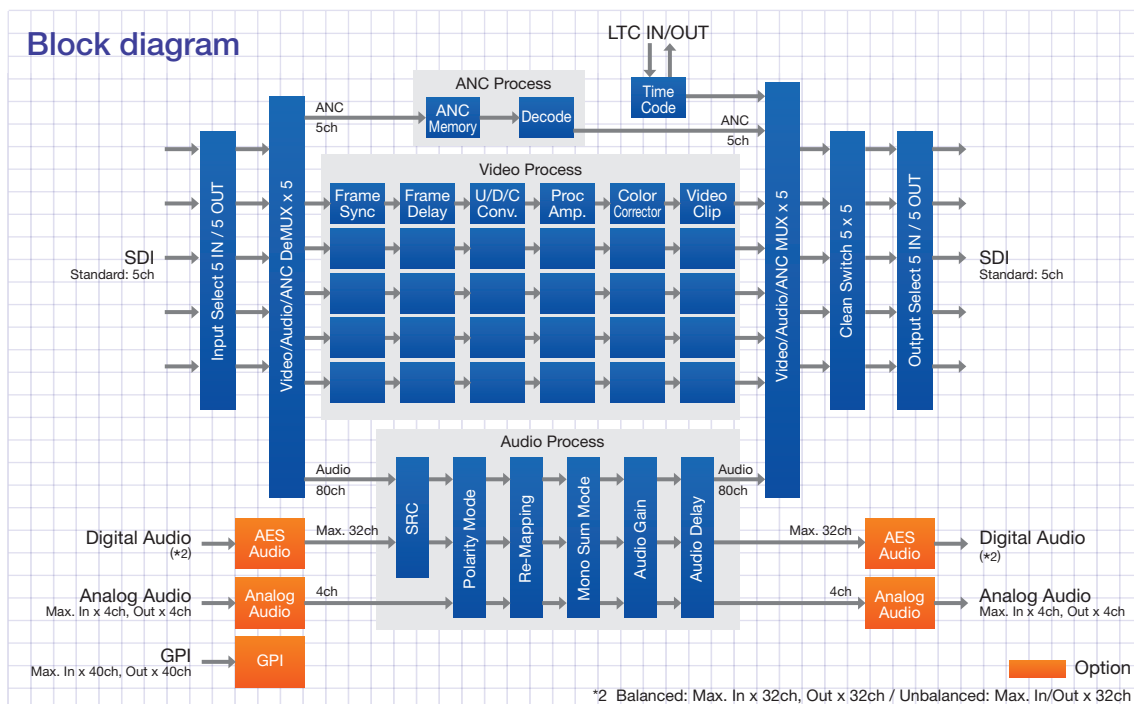


ITU-R BT.2020/709 color space conversion

Converts between color spaces used for HD (BT.709) and 4K/8K (BT.2020) applications.



Block diagram



*2 Balanced: Max. In x 32ch, Out x 32ch / Unbalanced: Max. In/Out x 32ch

Abundant functions as standard

5 3G/HD/SD-SDI inputs/outputs

5 SDI inputs have been included in the standard configuration. For SDI input, signals are synchronized independently in the FA-505, so during switchover there is no shock even if asynchronous signals are input; that means a clean switch in both video and audio. An I/O bypass function has also been provided in case power is cut or there is an emergency. Another advantage enabling compact, economical deployment is divided output, which eliminates the need for a separate signal splitter.

Digital audio I/O

For embedded audio, there are 16 channels per 3G/HD-SDI synchronous/asynchronous input, and there are 16 channels per synchronous input in SD-SDI. That means support for up to 80 channels with all 5 inputs. Many types of signal processing are possible, including SDI embedding and de-embedding, and if an optional expansion card is installed, A/D and D/A conversions are also possible, thus flexibly supporting even multi-channel audio content. Additionally, individual sampling rate converters are provided. Signal processing without any phase gap between channels is possible for such processes as delay adjustment, level adjustment, down-mixing and remapping. Also, users needn't worry about ancillary data being erased such as closed captions and time code due to signal processing.

Up/down/cross converter

In addition to A/D and D/A conversion, an up/down/cross converter is standard equipment on the FA-505. In addition to bidirectional conversion between HD and SD, the FA-505 also offers bidirectional conversion between 1080i format and 720p format (IP conversion).

Color corrector

In addition to the Proc. Amp., the FA-505 incorporates a color correction capability. This enables you to perform color corrections with 3 color correction modes and also reproduce the original colors in the selected color space using the gamma adjustment, clip, and various level adjustment capabilities.

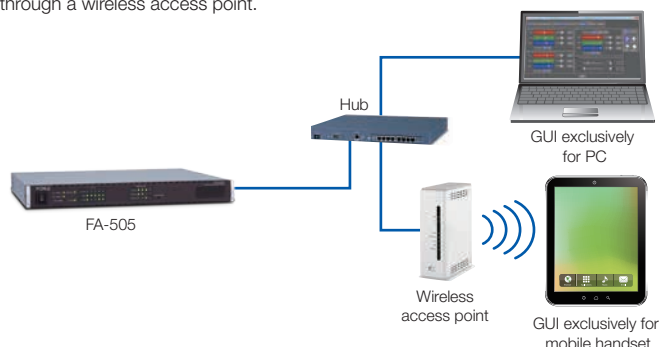
Powerful frame synchronizer

FOR-A's frame synchronizers have always exhibited superior performance when processing video with poor quality signals. Synchronizer modes that can be selected among from Frame, Line, AVDL, and Line (Min.). Adjustment range in AVDL mode is 5H in HD and 1H in SD. Moreover, in every mode both H and V³ ancillary data can be passed through.

*3 If input/output formats differ, there are limitations on the packets that can be passed through.

GUI control

An in-built Web server combined with the GUI exclusively for PC (see the figure below) means users can change settings of various functions of the FA-505 from a PC (windows) over a network. Mobile and tablet terminals can also be used through a wireless access point.



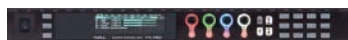
Other features (standard)

- Video/audio delay
- Monitoring and control from a Web browser
- SNMP monitoring (partial)

Options

FA-10RU

Remote Control Unit



One-touch switching of video input channels. Enjoy efficient color correction during frequent channel switching.

FA-AUX30

AUX Extension Panel



Offers one-touch assignment and activation of common functions in the operator's routine.

FA-10DCCRU

Remote Control Unit for Color Correction



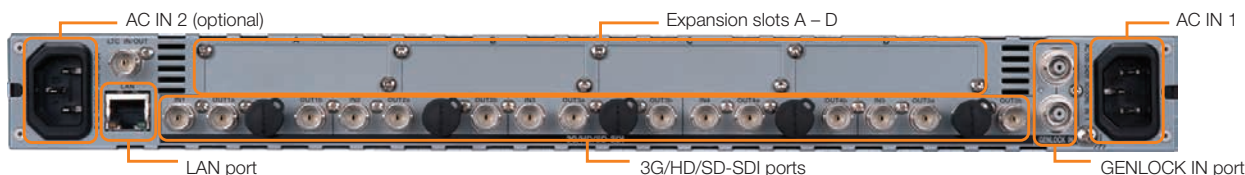
EXPANSION CARDS

4 slots in the rear panel can be used to expand the necessary functions.

- FA-10AES-BL Digital audio balanced I/O option
- FA-10AES-UBL Digital audio unbalanced I/O option
- FA-10AES-UBL-C Digital audio unbalanced output expansion cable (an extension cable for the FA-10AES-UBL)
- FA-10ANA-AUD Analog Audio I/O option
- FA-10GPI GPI 10 each input/output option

OTHER OPTIONS

- FA-50PS Redundant power supply unit (Including AC cord and AC cord retaining clip)



Accessories

AC Cord, rack mount brackets, CD-ROM (Windows GUI installation disc(Including operation manual (PDF)), quick setup guide



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FA-505

Specifications

Input Video Formats	525/60, 625/50, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p 1080/23.98p, 1080/24p, 1080/25p, 1080/29.97p, 1080/30p 1080/23.98PsF, 1080/24PsF 1080/59.94p(Level-A/B), 1080/50p(Level-A/B), 1080/60p(Level-A) 2x1080/59.94i(Level-B), 2x1080/50i(Level-B)
Output Video Formats	525/60, 625/50, 1080/59.94i, 1080/50i, 720/59.94p, 720/50p 1080/23.98p, 1080/24p, 1080/25p, 1080/29.97p, 1080/30p 1080/23.98PsF, 1080/24PsF 1080/59.94p(Level-A/B), 1080/50p(Level-A/B), 1080/60p(Level-A) 2x1080/59.94i(Level-B), 2x1080/50i(Level-B)
Video Input	3G/HD-SDI: 3 Gbps/1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 5
Video Output	3G/HD-SDI: 3 Gbps/1.5 Gbps or SD-SDI: 270 Mbps 75Ω BNC x 10 * Distribution output for each channel
Video Processing	4:2:2 Digital Component
Quantization	3G/HD/SD-SDI: 10-bit
Genlock Input	BB: NTSC: 0.429 Vp-p / PAL: 0.45 Vp-p; or Tri-level Sync: 0.6 Vp-p, 75Ω BNC x 1, loop-through (Terminate with 75Ω terminator, if unused.)
Synchronizer mode	Frame Sync mode, LineSync mode, AVDL mode, and Line (Minimum) mode
Video Delay	Maximum 8 frames (Frame Sync)
Video Processing Functions	Proc Amp Color Corrector
Process Amp	Video level: 0.0% to 200.0% Chroma level: 0.0% to 200.0% Black level: -20.0% to 100.0% HUE: -179.8° to +180°
Video Clip	YPbPr mode RGB mode
Color Correction	Balance mode Differential mode Sepia mode
Audio Input	
Embedded Audio	3G/HD: 16 channels (Group 1 to 4), 48 kHz, 16 to 24-bit, synchronous/asynchronous, (Link A-embedded audio only in 3G Level B) SD: 16 channels (Group 1 to 4), 48 kHz, 16 to 24-bit,, synchronous only
FA-10AES-BL Option (AES/EBU)	Balanced, 0.2-7 Vp-p, 110Ω, 25-pin D-Sub (female) x 1, input/output, 4 pairs of stereo channels, 32/44.1/48 kHz, 16-bit to 24-bit
FA-10AES-UBL Option (AES/EBU)	Unbalanced, 1.0 Vp-p, 75Ω, BNC x 4, input/output, Maximum 4 pairs of stereo channels, 32/44.1/48 kHz, 16-bit to 24-bit
FA-10ANA-AUD Option (Analog)	<Line input> 4 channels (2 pairs of stereo channels) balanced/unbalanced 25-pin D-Sub (female) x 1 (Shared with analog audio output) 600 ohm/high impedance, 48 kHz, 24-bit Input level: -10 dBu to +8 dBu <Mic input> 2 channels (1 pair of stereo channels) balanced/unbalanced (Shared with the analog audio input CH1/2 connector) 600 ohm/high impedance, 48 kHz, 24-bit Input level: -55 dBu to -30 dBu

Audio Output	
Embedded Audio	3G/HD: 16 channels (Group 1 to 4), 48 kHz, 16/20/24-bit, synchronous/asynchronous, (Link A-embedded audio only in 3G Level B) SD: 12 channels (Group 1 to 3), 48 kHz, 16/20/24-bit, synchronous only
FA-10AES-BL Option (AES/EBU)	Balanced, 3.3 Vp-p, 110Ω, 25-pin D-Sub (female) x 1, input/output, 4 pairs of stereo channels, 48 kHz, 16/20/24-bit
FA-10AES-UBLC Option (AES/EBU)	Unbalanced, 1.0 Vp-p, 75Ω, BNC x 4, (The FA-10AES-UBL functions as an input card when used with the FA-10AES-UBLC.) 4 pairs of stereo channels, 48 kHz, 16/20/24-bit
FA-10ANA-AUD Option (Analog)	4 channels (2 pairs of stereo channels) balanced/unbalanced 25-pin D-Sub (female) x 1 (Shared with analog audio input) 100 ohm or lower, 48 kHz, 24-bit Output level: -10 dBu to +8 dBu
Audio Delay	5 - 1,000 ms (adjustable in 1 ms steps)
Audio Processing Functions	Sampling rate converter (SRC) Gain control Down mix Channel re-mapping Channel mute
Interface	
Ethernet	100 Base-TX / 1000 Base-T, RJ-45 x 1
FA-10GPI Option	25-pin D-sub (female)
Temperature	0°C to 40°C
Humidity	30% to 90% (no condensation)
Power	100 VAC - 240 VAC ±10%, 50/60 Hz
Power Consumption	FA-505: 80 VA (79W) (at 100 - 120 VAC) 90 VA (77 W) (at 220 - 240 VAC) with FA-50PS: 90 VA (86 W) (at 100 - 120 VAC) 108VA (78 W) (at 220 - 240 VAC) Add the amount of power consumption of options installed: FA-10AES-BL: 4.3 VA (4.2 W) (at 100 - 120 VAC) 3.48 VA (3.8 W)(at 220 - 240 VAC) FA-10AES-UBL: 2.86 VA (3 W) (at 100 - 120 VAC) 3.12 VA (3.1 W)(at 220 - 240 VAC) FA-10GPI: 4.6 VA (4.8 W) (at 100 - 120 VAC) 4.1 VA (4.3 W)(at 220 - 240 VAC)
Dimensions	430 (W) x 400 (D) x 44 (H) mm
Weight	FA-505: 7.0 kg (without options) FA-10AES-BL: 0.2 kg FA-10AES-UBL: 0.2 kg FA-10AES-UBLC: 0.1 kg FA-10ANA-AUD: 01 kg FA-10GPI: 0.2 kg
Consumables	(Recommended replacement timespans) Power unit (within 3 years) Cooling fan: P-1439-2 (FAN 1 - 4) (within 5 years)
Accessories	CD-ROM(Windows GUI installation disc (including operation manual), AC cord, rack mount brackets
Options	◇FA-10AES-BL: Digital audio balanced I/O option ◇FA-10AES-UBL: Digital audio unbalanced I/O option ◇FA-10AES-UBLC: Digital audio unbalanced output expansion cable ◇FA-10ANA-AUD: Analog audio input/output option ◇FA-10GPI: GPI 10 each input/ output option

- ◇ FA-50PS: Redundant power supply unit
- ◇ FA-10RU: Remote Control Unit
- ◇ FA-10DCCRU: Color Corrector Remote Control Unit
- ◇ FA-AUX30: Auxiliary Unit

External Dimensions

FA-505

(All dimensions in mm)

