**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 COTF 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**

- **ANC Process**: ANC 5th
- **Frame Process**: Frame Sync, Frame Delay
- **Audio Process**: Audio 48kHz, Audio Delay 48kHz, Audio Delay 32kHz
- **Digital Audio**: AES Audio, Max. In x 32ch
- **Analog Audio**: Max. In x 32ch, Out x 32ch
- **GPI**: GPI

---

*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, 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 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.

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 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 correction. In addition to the Proc. Amp., the FA-505 incorporates a color correction capability.

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 V 3 ancillary data can be passed through.

If input/output formats differ, there are limitations on the packet lengths 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.

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
  - AC IN 2 (optional)
  - LAN port
  - 3G/HD/SD-SDI ports
  - GENLOCK IN port
  - Expansion slots A – D

**Expansion Cards**

- **FA-10AES-BL**: Digital audio balanced I/O option
- **FA-10AES-UBL**: Digital audio unbalanced I/O option
- **FA-10AES-UBLD**: 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 cordand AC cord retaining clip)

**Accessories**

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

© 2021 FOR-A Company Ltd. FOR-A is a registered trademark of FOR-A Company Ltd.
## 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  
| | 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 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  

*FA-505*
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-UBL 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-UBL.)
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: 0.1 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)