Universal System Frame

USF-Series

Universal modular frame designed for compact, economical system building. Build an optimal system for your environment from a full array of modules.

Available frames

- 1U size. Holds 5 modules.
  - USF-105AS (Supports 12G-SDI modules)
  - USF-105S

- 2U size. Holds 12 modules.
  - USF-212AS (Supports 12G-SDI modules)
  - USF-212S

- Hot-swappable, front-accessible power unit and module bays

New design combining SDI and Ethernet

- Two genlock inputs (Black burst (BB) or tri-level sync) (USF-212AS/212S)
- Built-in Gigabit Ethernet hub for GUI-based module configuration
- Frame operational monitoring (cooling fan and power) and module life-and-death monitoring using SNMP

Available modules

Below is the maximum number of modules mounted on each flame. For details, please contact FOR-A office.

<table>
<thead>
<tr>
<th>Module</th>
<th>Flame</th>
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Available modules

**USF-10IP**

Dual 10 GbE (SFP+) ports
- Converts to other encapsulation modes
- Encapsulation modes: SMPTE 2022-5/6/7, SMPTE 2110, NMI

**USF-10IPSDI16-FS**

Frame/line synchronizer with dual 10 GbE (SFP+), 1-input/1-output 12G-SDI, and 6-input/6-output 3G/1.5G-SDI
- 2SI/SQD and Level A/B conversion
- SMPTE 2022-5/6/7, (uncompressed): Simultaneous conversion of up to 6 inputs or 6 outputs (6 streams)

**USF-10IPSDI12-FS**

Frame/line synchronizer with dual 10 GbE (SFP+), 1-input/1-output 12G-SDI, and 12-input/12-output 3G/1.5G-SDI
- 2SI/SQD and Level A/B conversion
- SMPTE2022-5/6/7, (uncompressed): Simultaneous conversion of up to 6 inputs and 6 outputs (12 streams)
USF-106 TICO-12G

4K/TICO encoder/decoder
- TICO codec support enables video compression and expansion with high image quality and low latency.
- 4K video transfer over 3G-SDI
- One 12G-SDI input, 2 outputs
- 4K 2SI/SQD, Level A/B support
- Downconversion from 4K to HD (1080i/1080p)
- Upconversion available as an option
- HDR/WCG-compatible color processing
- Audio processing enables automatic/semi-automatic audio delay setting
- Frame synchronization

Available modules

USF-105FS-12G

12G-SDI frame synchronizer
- Supports 3840x2160 single link 12G-SDI
- Supports 3840x2160 quad link (2SI, Level A) 3G-SDI (input and output are switched from a menu)
- 12G-SDI and quad link 3G-SDI (2SI, Level A) conversion
- FS mode: Adjusts phases and syncs asynchronous SDI signals to genlock signals
- Automatic muting for detected audio errors
- 16-channel audio sample rate converter (SRC)
- Audio delay adjustment for each channel (up to 1,000 ms), and audio channel remapping
- Audio downmixing for linear PCM
- H/V ancillary data pass-through (synchronous input only)
- Proc amp, video clip, video delay, and freeze
- 16-channel embedded audio support (asynchronous audio support for 3G/HD-SDI)
- SNMP monitoring

USF-1043FS

3G/HD/SD-SDI frame synchronizer
- Splits a 3G/HD/SD-SDI source selected from two inputs, for distributed output to four ports
- FS mode: Adjusts phases and syncs asynchronous SDI signals to genlock signals
- Automatic muting for detected audio errors
- 16-channel audio sample rate converter (SRC)
- Audio delay adjustment for each channel (up to 1,000 ms), and audio channel remapping
- Audio downmixing for linear PCM
- Seamless switching of audio and video inputs
- H/V ancillary data pass-through (synchronous input only)
- Proc amp, video clip, video delay, and freeze
- 16-channel embedded audio support (asynchronous audio support for 3G/HD-SDI)
- SNMP monitoring
**Available modules**

**USF-106UDC-12G**

**12G-SDI 4K/HD up/down converter**
- Supports 3840x2160 single link 12G-SDI
- Supports 3840x2160 quad link (2SI/SQD) 3G-SDI (input and output are switched from a menu)
- 3G-SDI Level A/B conversion
- Dynamic range conversion
- Converts between ITU-R BT.2020/709
- 16-channel embedded audio support
- Sync modes: Frame, Line, AVDL
- Browser-based control via dedicated software GUI
- SNMP monitoring

**USF-105UC-12G**

**12G-SDI 4K up converter**
- Supports 3G/HD-SDI input
- Supports 3840x2160 single link 12G-SDI and quad link (2SI/SQD) 3G-SDI outputs
- 3G-SDI Level A/B conversion
- Dynamic range conversion
- Converts between ITU-R BT.2020/709
- 16-channel embedded audio support
- Sync modes: Frame, Line, AVDL
- Browser-based control via dedicated software GUI
- SNMP monitoring

**USF-106DC-12G**

**12G-SDI 4K to HD down converter**
- Supports 3840x2160 single link 12G-SDI
- Supports 3840x2160 quad link (2SI/SQD) 3G-SDI (input and output are switched from a menu)
- Dynamic range conversion
- Converts between ITU-R BT.2020/709
- 16-channel embedded audio support
- Sync modes: Frame, Line, AVDL
- Browser-based control via dedicated software GUI
- SNMP monitoring

*3G/HD-SDI IO 2a to 2d ports cannot input and output signals simultaneously.
Available modules

**USF-111DDA-12G**

12G-SDI 11-output digital video distributor
- Supports SDI 12 Gbps, 3 Gbps, 1.5 Gbps, or 270 Mbps signals
- DVB-ASI (270 Mbps) also supported
- SNMP monitoring

**USF-105DDA-12G**

12G-SDI 5-output digital video distributor
- Supports SDI 12 Gbps, 3 Gbps, 1.5 Gbps, or 270 Mbps signals
- DVB-ASI (270 Mbps) also supported
- SNMP monitoring

**USF-1053DDDA**

5-output 3G/1.5G/270 Mbps digital video distributor
- 3G/HD/SD-SDI equalization and reclocking
- Supports SDI 3.0 Gbps, 1.5 Gbps, or 270 Mbps signals
- DVB-ASI (270 Mbps) also supported
- SNMP monitoring

**USF-1043VM**

3G/HD/SD-SDI digital video distributor with signal monitor
- Supports SDI 3 Gbps, 1.5 Gbps, or 270 Mbps signals
- Can be configured for 1-input/4-output or 2-input/2-output systems
- Switches seamlessly to the other line when errors of input signals are detected
- SNMP monitoring
**Available modules**

**USF-1100VEA**

10-output analog video distributor

- Cable equalization corrects frequency characteristics in analog video distribution
- Ideal for BB or tri-level sync signal distribution
- Pass-through input supported
- Browser-based control and SNMP monitoring (optional)

**USF-1040VEA**

4-output analog video distributor

- Cable equalization corrects frequency characteristics in analog video distribution
- Ideal for BB or tri-level sync signal distribution
- Pass-through input supported
- Browser-based control and SNMP monitoring (optional)

**USF-105DADA**

5-output unbalanced digital audio distributor

- Expandable to 20 outputs, using four modules
- LTC and word clock distribution also supported
- SNMP monitoring
**USF-108ADA**

8-output analog audio distributor

- Can be configured for 1-input/8-output or two 1-input/4-output systems
- Browser-based control and SNMP monitoring (optional)

When distributing 1 input to 8 outputs

When distributing 1 input to 4 outputs (2 inputs to 8 outputs in total)

**USF-204ADAC**

Digital-to-analog audio converter with AES/EBU two-channel input/output

- Converts two channels of digital audio to four channels of analog audio
- Adjustable digital audio input level (-20/-18 dBFS)
- Adjustable audio output level (-10/0/4/8 dBu)
- Adjustable audio silence period (1 to 10 sec)
- Supports output synced with reference signals from the USF
- SNMP monitoring

*Asynchronous input not supported. AES/EBU signals are required to synced with reference signals from the USF frame.

**USF-402AADC**

Analog-to-digital audio converter

- Converts four channels of analog audio to two channels of digital audio
- Adjustable input impedance (600Ω/high)
- Adjustable input gain (+6 dB with front dial, ±20 dB via browser)
- Adjustable analog audio input level (-10/0/4/8 dBu)
- Adjustable digital audio reference level (-18/-20 dBFS)
- Adjustable audio silence period (1 to 10 sec)
- Supports output synced with reference signals from the USF
- SNMP monitoring
USF-101MDX4-12G

12G-SDI 4K audio multiplexer/demultiplexer with 8 channels of AES I/O
- Supports transfer rates from 270 Mbps to 12 Gbps
- Sync modes: Frame, Line, AVDL
- Sample rate converter (SRC) for MUX/DEMUX of asynchronous AES/EBU signals (switched from a menu)
- MUX: Mapping 8 channels (4 pairs) of AES/EBU signals in 16 channels (at 4K) and embedding onto SDI signals
- DEMUX: De-multiplexes 8 selected channels from 16 channels from SDI signals as AES/EBU audio output
- LTC port is used for input and output
- SNMP monitoring

USF-101MDX8-12G

12G-SDI 4K audio multiplexer/demultiplexer with 16 channels of AES I/O
- Supports transfer rates from 270 Mbps to 12 Gbps
- Sync modes: Frame, Line, AVDL
- Sample rate converter (SRC) for MUX/DEMUX of asynchronous AES/EBU signals (switched from a menu)
- MUX: Mapping 16 channels (8 pairs) of AES/EBU signals in 16 channels (at 4K) and embedding onto SDI signals
- DEMUX: De-multiplexes 8 selected channels from 16 channels from SDI signals as AES/EBU audio output
- LTC port is used for input and output
- SNMP monitoring
**USF-1013MUX**

3G/HD/SD-SDI digital audio multiplexer
- Multiplexes 4 pairs (8 channels) of AES/EBU signals onto SDI signals
- 1 input and 1 output (3G/HD/SD-SDI)
- Gain adjustment for audio input/output
- Timecode (LTC) input (or AES IN 7/8 available)
- Sample rate converter for AES/EBU input
- SNMP monitoring

**USF-1013DEMUX**

3G/HD/SD-SDI digital audio demultiplexer
- De-multiplexes audio from SDI signals into AES/EBU audio output
- 1 input and 1 output (3G/HD/SD-SDI)
- Gain adjustment for audio input/output
- Timecode (LTC) input (or AES IN 7/8 available)
- SNMP monitoring
Front view (when the front panel is removed)

Power unit 1 bay
Ethernet HUB
USF module bays

Power unit 2
(incl. cooling fan)

USF-212S

External view

USF-212AS

88
480

USF-105AS

44
480

Rear view

USF-212AS

USF-105AS