

# BrightEye 90-F

## HD Up / Down / Cross Converter and ARC with AES Audio and Optical Output

### Easy To Use

BrightEye 90-F is a versatile up/down/cross converter or aspect ratio converter for use with analog and digital video signals with the addition of an optical output. Optical connectivity allows for long cable runs between buildings or in mobile applications. Simply set the BrightEye 90-F to output your facility's preferred HD or SD standard. The BrightEye 90-F will accommodate whatever input you connect – analog composite, SD SDI or HD SDI. After setting the output standard, BrightEye 90-F automatically converts the selected input to the correct standard for your facility. BrightEye 90-F will upconvert, downconvert, cross convert, or act as an ARC, as needed. The built-in Frame Synchronizer allows you to feed asynchronous signals to the BrightEye 90-F. A special Mirror Output Mode can be enabled, causing the output image to be flipped left to right or use with on-camera talent. An external reference input allows genlock to a house reference. All vertical interval data and closed captioning is faithfully passed.

### Upconverting to High Definition

Feed the analog composite or SD SDI output of a camera to a BrightEye 90-F and upconvert to HD. You can take the HD signal from the BrightEye 90-F into a switcher or projection system. Upconverting existing SD equipment lets you leverage the equipment you already have and operate in the HD domain.

While some cameras may have firewire out, using the video output and upconverting before distribution is preferable since longer cable runs can be achieved and quality is superior. Additionally, the BrightEye 90-F's reference input allows you to time the upconverted video output for use with a production switcher.

### Downconverting to Standard Definition

BrightEye 90-F will downconvert any type of HD signal and provides both an SD SDI and an analog composite output suitable for broadcast or monitoring.

### Cross Conversion

It's easy to convert between various HD standards, whether 720p or 1080i. Simply select the output standard you need and connect the input – that's all there is to it.



- ▶ Use with Cameras and Projection Systems
- ▶ Turn Analog Camera into Digital HD Source
- ▶ HD and SD Digital and Analog Composite Video I/O
- ▶ AES Digital Audio I/O
- ▶ Analog Audio Monitor Output
- ▶ Mirror Output Mode for On-Camera Talent
- ▶ HDMI Output for Monitoring
- ▶ Optical Output for long cable runs
- ▶ Frame Sync
- ▶ 12 and 16 bit processing
- ▶ Passes Embedded Audio

### Aspect Ratio Conversion

For converting between SD 4:3 and HD 16:9, BrightEye 90-F has you covered. Just select the output standard you need and connect the input.

### Audio Processing Made Simple

BrightEye 90-F handles both embedded audio and discrete AES digital audio streams. Sixteen channels of embedded audio are supported in BrightEye 90-F. If the incoming video has embedded audio, the audio will be safely bypassed around the video processing and lipsync will be preserved. Audio mixing is available for two of the four embedded groups of audio. The AES I/O ports can be configured for eight channels of incoming audio or for eight channels of audio output. The audio mixer can be used for AES channels as well. Mixer controls are accessed through BrightEye Mac or PC software.

### Monitoring for Video and Audio

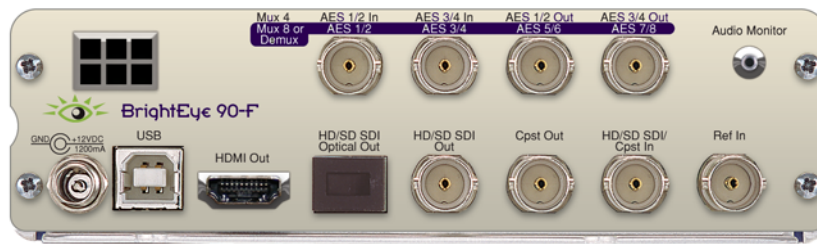
Audio monitoring is easy with BrightEye 90-F's convenient 3.5 mm mini jack. Select the audio channels you want to monitor from the front panel and plug in a headset.

The HDMI connector on the rear of the unit provides a future proof monitoring interface. Plug it into most LCD monitors for confidence monitoring of your feed.

### Front Panel and Software Control

Input selection, gain control, and test pattern controls are provided through the front panel interface. Audio presence LEDs indicate which channels are detected. Controls for crop, letterbox and pillarbox are accessed from the front panel or BrightEye Mac or PC software. Video and audio levels and the audio mixer can be adjusted through BrightEye Mac or PC software.

## BrightEye 90-F



### ► Specifications

#### Analog Video Input

|             |                              |
|-------------|------------------------------|
| Number      | One                          |
| Type        | Analog Composite PAL or NTSC |
| Resolution  | Digitized at 12 bits         |
| Impedance   | 75 Ω                         |
| Return Loss | >40 dB                       |
| Input DC    | +/-1 volt DC                 |
| Input Hum   | <100 mV                      |

#### Serial Digital Input

|                  |  |
|------------------|--|
| Number           | One  |
| Signal Type      | 270 Mb/s SD Serial Digital (SMPTE 259M) or 1.485 Gb/s HD Serial Digital (SMPTE 274M or 296M) |
| Impedance        | 75 Ω   |
| Return Loss      | >15 dB   |
| Max Cable Length | 300 meters for 270 Mb/s<br>100 meters for 1.485 Gb/s   |

#### Reference Input

|             |   |
|-------------|---|
| Number      | One   |
| Type        | 1 V p-p Composite Video PAL or NTSC or Tri-Level Sync |
| Impedance   | 75 Ω  |
| Return Loss | >40 dB  |

#### Analog Video Output

|             |                       |
|-------------|-----------------------|
| Number      | One                   |
| Type        | Composite PAL or NTSC |
| Return Loss | >40 dB                |
| Output      | DC <100 mV            |

#### Serial Digital Output

|                  |  |
|------------------|--|
| Number           | One  |
| Type             | HD Serial Digital 1.485 Gb/s SMPTE 274M, 292M or 296M or SD Serial Digital 270 Mb/s SMPTE 259M-C |
| Processing       | 12 and 16 bit  |
| Impedance        | 75 Ω   |
| Return Loss      | >15 dB   |
| Max Cable Length | 100 Meters for HD<br>300 Meters for SD<br>(Belden 1694A or equiv.)                               |

#### HD Standards Supported

|                             |                    |
|-----------------------------|--------------------|
| 1080i (SMPTE 274M -4,5,6)   | 50, 59.94 or 60 Hz |
| 720p (SMPTE 296M -1,2,3)    | 50, 59.94 or 60 Hz |
| 1080p (SMPTE 274M -9,10,11) | 23.98, 24, 25 Hz   |
| 1080sF (RP211 -14,15,16)    | 23.98, 24, 25 Hz   |

#### Embedded Output (In Serial Output)

|              |                    |
|--------------|--------------------|
| Group Assign | Two of four groups |
| Channels     | Sixteen passed     |
| Bit Depth    | 24 Bit             |

#### AES/EBU Digital Inputs

|                  |  |
|------------------|--|
| Number           | Four (total of eight channels) (selectable as inputs or outputs) |
| Type             | AES3id   |
| Connectorization | Coaxial, 75 Ω  |
| Bit Depth        | 20 and 24 Bit  |
| Sample Rate      | 30KHz to 96 KHz (Sample Rate Converted internally to 48 KHz)     |
| Reference Level  | -18 or -20 dBFS (selectable)                                     |

#### AES/EBU Digital Outputs

|                  |  |
|------------------|--|
| Number           | Four (total of eight channels) (selectable as inputs or outputs) |
| Type             | AES3id   |
| Connectorization | Coaxial, 75 Ω  |
| Bit Depth        | 24 Bit   |
| Sample Rate      | 48 KHz   |
| Reference Level  | Synchronous to video output<br>-18 or -20 dBFS (selectable)      |

#### Optical Output

|                  |  |
|------------------|--|
| Number           | One  |
| Type             | SD (SMPTE 297M, optical equivalent of 259M)<br>HD (SMPTE 274M or 296M)     |
| Wavelength       | 1310 nm (1550 by special order)  |
| Power            | -7 dBm   |
| Max Cable Length | 20 km  |
| Fiber Type       | Single Mode<br>Multi-mode compatible with 8 dB attenuation at transmit end |
| Connector        | SC   |

#### Monitor Output

|                  |                 |
|------------------|-----------------|
| Number           | One             |
| Connectorization | HDMI            |
| Type             | Follows SDI out |

#### Audio Monitoring Output

|                  |                                  |
|------------------|----------------------------------|
| Number           | One (Select from eight channels) |
| Connectorization | 3.5 mm stereo mini jack          |

#### General Specifications

|                   |   |
|-------------------|---|
| Size              | 5.625" W x 1.7" H x 5.5" D (143 mm x 40 mm x 140 mm) including connectors |
| Power             | 12 volts, 7 watts (100-230 VAC modular power supply not included)         |
| Temperature Range | 0 to 40° C ambient  |
| Relative Humidity | 0 to 95%, non-condensing  |