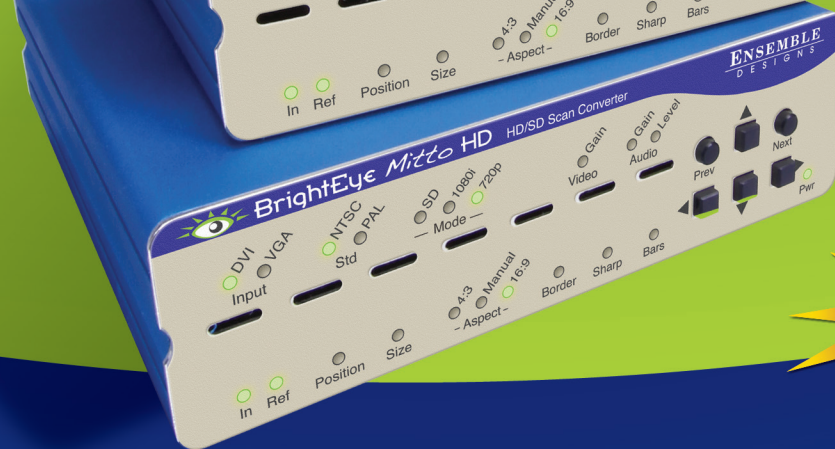
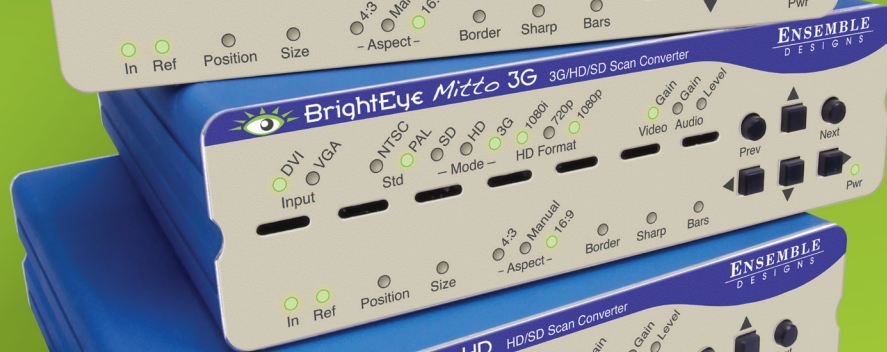
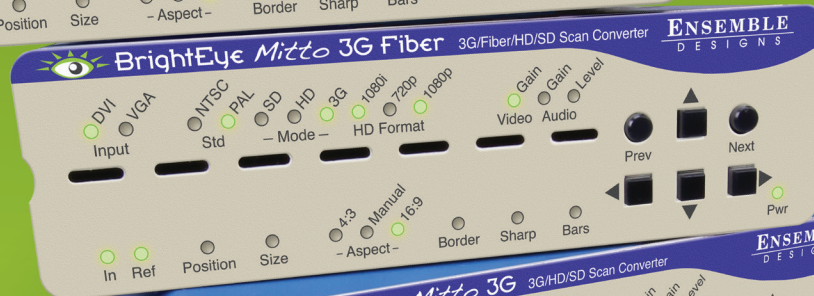
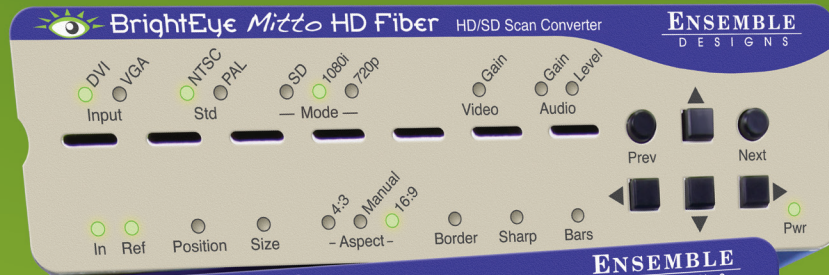


# BrightEye Mitto™

## High Performance Scan Converters



# ENSEMBLE

D E S I G N S

*Purveyors of Fine Video Gear—Loved by Engineers Worldwide*

## YouTube and Skype Video Made Easy

The BrightEye Mitto™ family of high performance scan converters provide a new way to take just about any source to 3G, HD or SD SDI video. Computer video can now be used for the most demanding applications including broadcast, high-end military, medical, classroom, church and corporate. All Mitto units accept VGA, DVI and HDMI input signals from PC and Mac computers.

## Choose the Functionality You Need

Five different BrightEye Mitto units, each with varying types of outputs and capabilities, allow you to choose the best one for your particular video application. All BrightEye Mitto units convert YouTube, Skype video, weather radar, emails and maps to video. Just a small part of the screen, such as a Skype window, can be selected with a mouse and converted to full screen HD. Ensemble uses the latest technology in its proprietary upconversion and filtering and that means you have the best looking video. Compare Mitto to any other scan converter and see the difference!

## Features

- High Performance Scan Converter for PC and Mac
- Best way to bring YouTube™, Skype™, Weather Radar, Maps and Emails to Video for Production Use
- Superior Video Output - Flicker-Free, Fine Detail
- Use with all Types of Macs and PCs including Laptops, iPhone® and iPad™
- Auto-senses DVI or VGA
- Use a Mouse to Select the Part of the Video You Want to Output
- Choose a Mitto with Adjustable Audio Delay for Skype and Broadcast Applications
- DVI I/O, VGA and HDMI to SD, HD, 3G, and Composite
- Easily Adjust Video Parameters and Select Video Output Format
- Genlock and Time to House Reference, Fully Timeable
- Rackmountable
- Memory Presets for Your Favorite Settings
- 5-Year Warranty and Free Software Upgrades Forever

## Five BrightEye Mitto Models to Choose From

Select the perfect combination of features and price for your video facility

|  | BrightEye Mitto 3G BEM-1 | BrightEye Mitto 3G Fiber BEM-1F | BrightEye Mitto HD BEM-2 | BrightEye Mitto HD Fiber BEM-2F | BrightEye Mitto Pro 2 BEM-4 |
|--|--------------------------|---------------------------------|--------------------------|---------------------------------|-----------------------------|
| DVI, VGA, or HDMI inputs                     | ★                        | ★                               | ★                        | ★                               | ★                           |
| HD or SD video outputs                       | ★                        | ★                               | ★                        | ★                               | ★                           |
| 3 Gb/s video output                          | ★                        | ★                               |                          |                                 |                             |
| Optical output                               |                          | ★                               |                          | ★                               |                             |
| Analog or embedded audio input               | ★                        | ★                               | ★                        | ★                               | ★                           |
| AES audio input and output                   | ★                        | ★                               | ★                        | ★                               |                             |
| Full control of audio levels, channel mixing | ★                        | ★                               | ★                        | ★                               |                             |
| Adjustable audio delay                       | ★                        | ★                               | ★                        | ★                               |                             |
| RS-232/GPI control                           | ★                        | ★                               | ★                        | ★                               |                             |

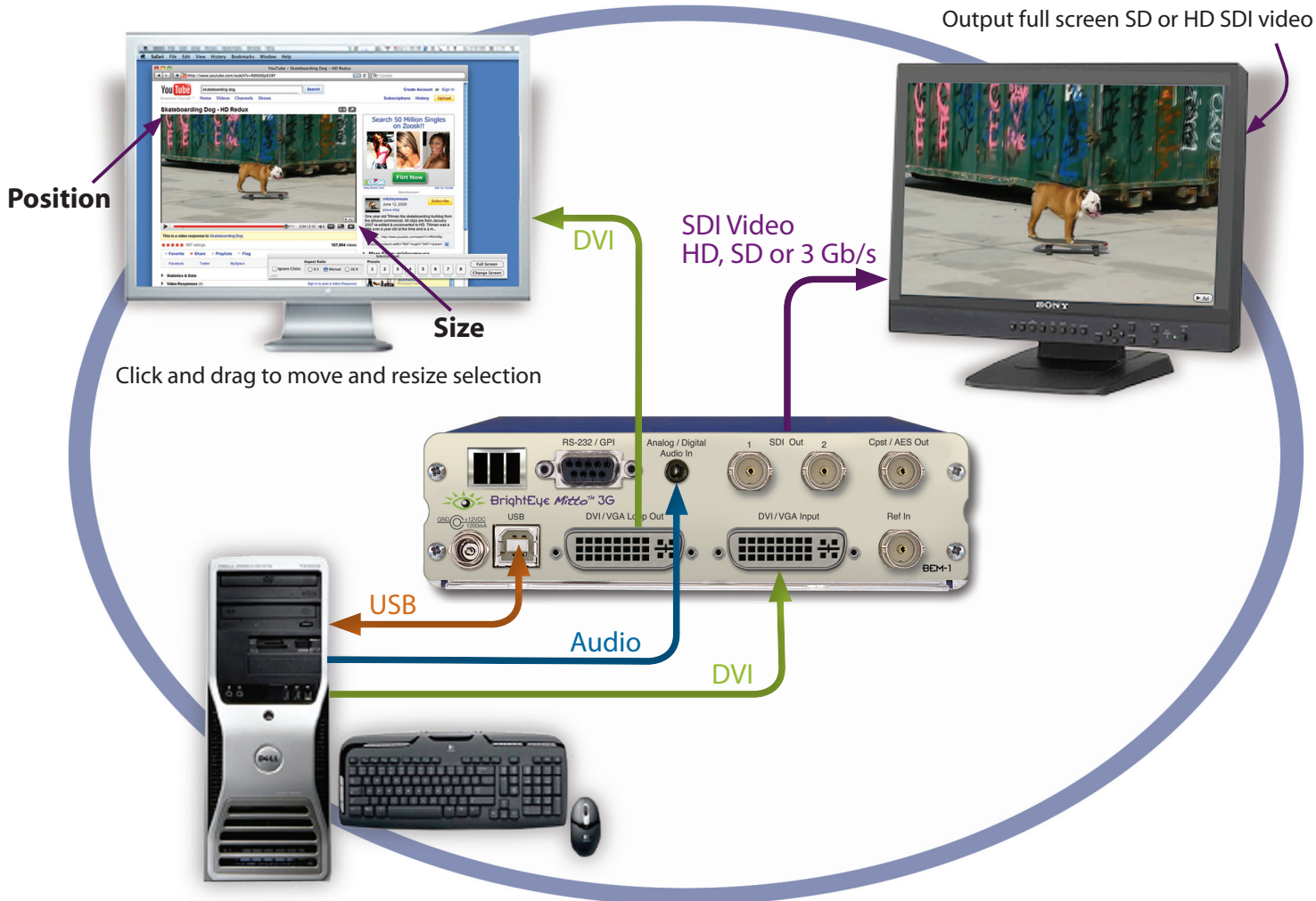


# BrightEye Mitto Scan Converters



*"Regardless of how quickly we need to take Mitto to air, it works famously every time. And it looks spectacular. When we covered the blizzards last winter, all of our user-generated content submissions and Skype came through Mitto."*

*~ John Schilberg, VP of Technology, Griffin Communications  
KWTV, KOTV and KQCW*



Typical Mitto Connection



TV EUROPE ☆ Editors' Awards  
**Best of IBC2010**

# Additional Control with BrightEye Mac and PC Software

## BrightEye Mac and PC Software

Adjusting video levels, output timing, audio delay, and mixing audio channels is so easy with BrightEye control software. From your desktop you have complete and intuitive control of timing, video format, and video level adjustments. You can easily time BrightEye Mitto into a video production switcher or router.

## Easy To Use

BrightEye PC/Mac software runs ovetop of any video, website or software. The Selection Tool shows up as a colored box around your selection and shows the portion of the video that will be output from BrightEye Mitto.

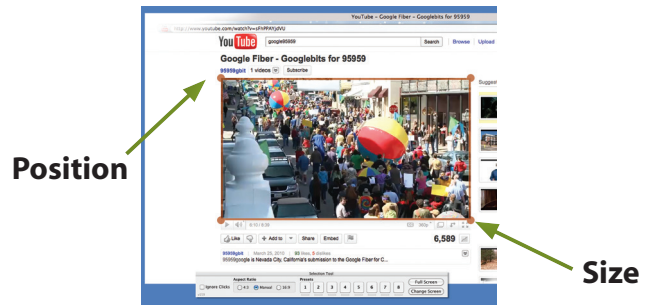
## Use a Mouse to Select What's Output to Video

BrightEye PC and BrightEye Mac software let you simply use your mouse to click and drag over the specific portion of computer video that you want to output. The perspective of seeing the whole screen gives you the ability to choose exactly which portion of the video you want to output. It's easy to output the entire screen or just a selected portion.

Resize the selection window by clicking and dragging with your mouse. Mitto's video output automatically goes to pillarbox or letterbox as needed. Mitto automatically maintains perfect aspect ratio.

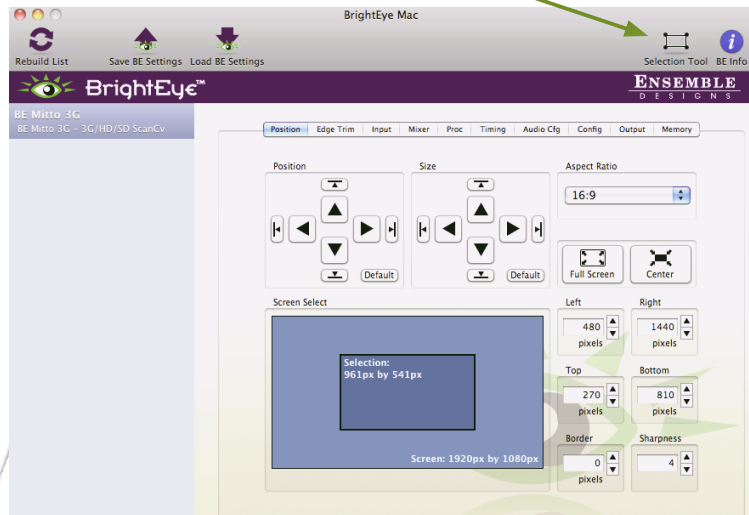
## Exclusive Filtering and Scaling Technology

A superior quality scan converter, BrightEye Mitto has the advantage of proprietary scaling technology and exclusive multi-tap filtering. Even a small part of the computer screen, such as a YouTube video, will be upconverted to full screen HD. The region selected for output determines if Mitto acts as an upconverter or downconverter. The filters automatically adjust in accordance with the conversion being performed. The result is that the output looks as good, or better, than the original and passes the most stringent testing.



Click and drag to move and resize selection

Click the  Selection Tool button in BrightEye Mac or PC to bring up the Selection Tool.



Output Full Screen SD or HD SDI Video





# BrightEye Mitto Scan Converters

## Digital and Analog Video and Audio

The intuitive front panel interface makes it easy to choose the desired video output format. The genlock reference input allows the video outputs to be timed to house.

The audio input accepts analog audio. AES is optional. Audio is embedded into the SDI outputs which is required for many high end applications. Audio delay controls let you adjust the audio with respect to video for perfect lip sync, which is crucial when using Skype video in a production environment.

## Used Worldwide

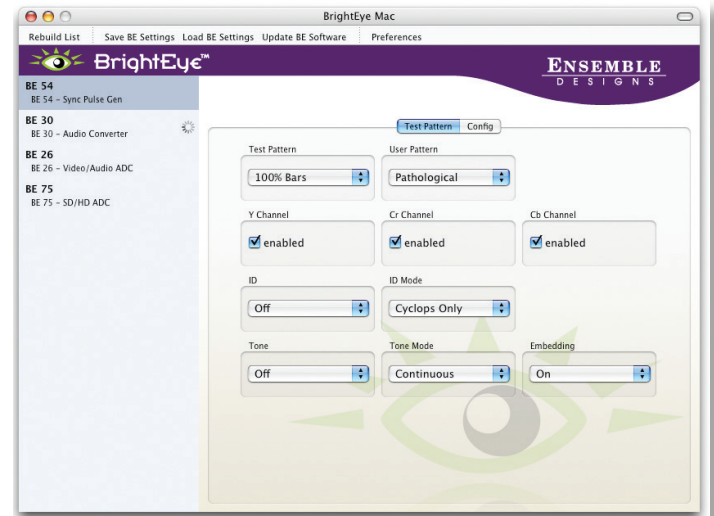
BrightEye's compact size lets you put conversion right where it's needed: in a remote truck, at a live venue, on a helicopter, in a production, or in a TV station. Reliable and easy to install, BrightEyes make your transition to HD simple. And they're affordable, too!

## Free Software Upgrades Forever

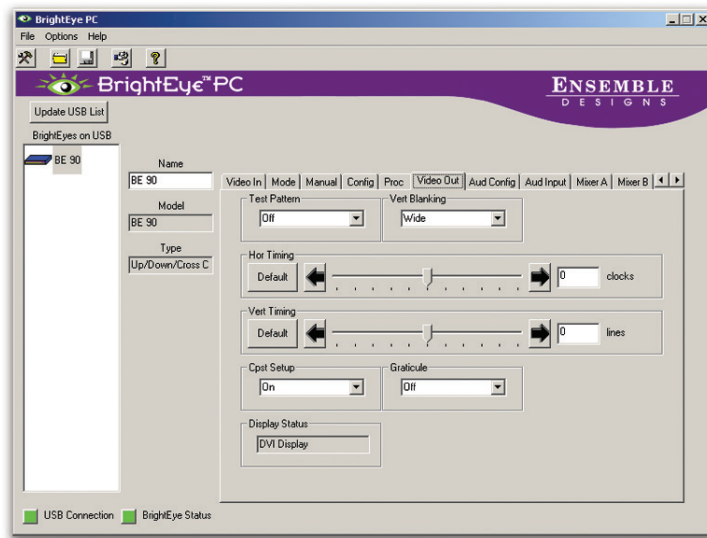
Use BrightEye Mac or PC software to control a single BrightEye unit or any number of units connected to a USB hub. BrightEye Mac and PC software are included with each unit at no charge.

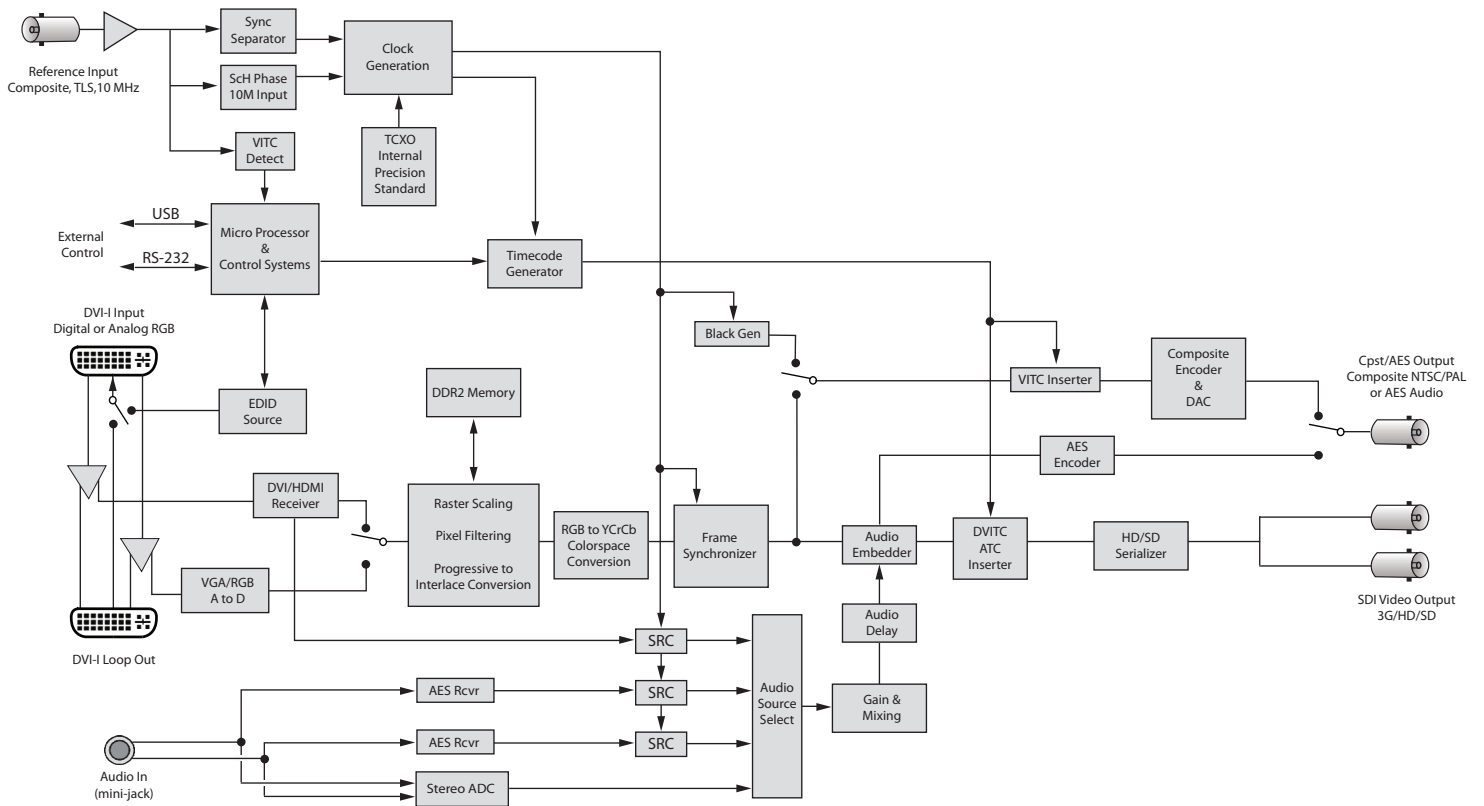
BrightEye Mitto's software is easily upgraded through the unit's USB port. Software upgrades are available at no charge for the life of the product and are conveniently downloadable from the Ensemble Designs' web site. Updates are free, forever. Every unit comes with a five-year warranty.

Mac Screen Shot



PC Screen Shot





Block diagram represents BEM-1. See specs for variations on other models.

## Order Info

|        |                          |
|--------|--------------------------|
| BEM-1  | BrightEye Mitto 3G       |
| BEM-1F | BrightEye Mitto 3G Fiber |
| BEM-2  | BrightEye Mitto HD       |
| BEM-2F | BrightEye Mitto HD Fiber |
| BEM-4  | BrightEye Mitto Pro 2    |

## Mitto Defined:

- Comes from the Latin root for *transmit* or *send*
- It's also the root word of *uncompromising*

Each unit comes with 1 USB cable, 2 VGA to DVI adapters,  
1 modular power supply and BrightEye Software for Mac and PC





# BrightEye Mitto Scan Converters

## Computer Input

|            |   |
|------------|---|
| Number     | One                                     |
| Type       | DVI (Supports HDMI or VGA with adapter) |
| Connector  | DVI-I                                   |
| Resolution | Up to 1920 x 1200                       |

## Reference Input

|             |  |
|-------------|--|
| Number      | One, BNC   |
| Type        | 1 V P-P Composite Video<br>PAL, NTSC, Tri-Level Sync |
| Impedance   | 75 $\Omega$  |
| Return Loss | >40 dB   |

Note: When no reference is provided, Mitto runs from an internal "sync gen grade" precision frequency reference.

## Analog Audio Inputs

|                    |                               |
|--------------------|-------------------------------|
| Number             | One stereo pair               |
| Connector          | 1/8" mini jack                |
| Impedance          | >15K $\Omega$                 |
| Max Input Level    | 24 dBu                        |
| Quantization       | 24 bits, 128 x oversampled    |
| Sample Rate        | 48 KHz                        |
| Reference Level    | -10 dBu or +4 dBu             |
| Frequency Response | $\pm 0.1$ dB, 20 Hz to 20 KHz |
| Crosstalk          | <106 dB                       |
| Dynamic Range      | >106 dB                       |

## AES/EBU Digital Inputs (BEM-1, 1F, 2, 2F)

|             |  |
|-------------|--|
| Number      | Two (four channels)  |
| Type        | AES3id, S/PDIF   |
| Connector   | 1/8" mini jack   |
| Bit Depth   | 20 and 24 Bit  |
| Sample Rate | 30 KHz to 192 KHz (Sample Rate Converted Internally to 48 KHz) |

## Serial Digital Output

|             |   |
|-------------|---|
| Number      | Two, BNC  |
| Signal Type | One for BEM-1F and 2F<br>270 Mb/s SD SDI, SMPTE 259M<br>1.485 Gb/s HD SDI, SMPTE 274M, 292M, 296M<br>2.97 Gb/s HD SDI (BEM-1 and BEM-1F only)<br>SMPTE 424M, 425M |
| Processing  | 16 bit processing<br>12 and 14 bit upconversion   |
| Delay       | Adjustable from 16 msec to 40 msec  |

Note: Output is fully timeable with respect to the reference input.

|             |   |
|-------------|---|
| Audio       | Embedded                                  |
| Impedance   | 75 $\Omega$                               |
| Return Loss | >15 dB to 1.485 GHz<br>>10 dB to 2.97 GHz |
| Output DC   | None (AC coupled)                         |

## 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  
 525i, 625i (SMPTE 259M)  
 1080p (SMPTE 424M, 425M), 50, 59.94, 60, Level A (BEM-1 and BEM-1F only)

## Optical Output (BEM-1F, 2F)

|                  |  |
|------------------|--|
| Number           | One, LC/UPC  |
| Type             | Follows SDI configuration  |
| Wavelength       | 1310 nm (non-CWDM)<br>Wavelengths 170 nm –1610 nm<br>at 20 nm CWDM spacing available.<br>Call factory for price and details. |
| Power            | -7 dBm   |
| Max Cable Length | 20 km (For greater distances, or higher power and larger loss budgets, please contact the factory)                           |
| Fiber Type       | Single Mode<br>Multi-mode compatible with attenuation at transmit end  |

## Analog Video Output

|             |  |
|-------------|--|
| Number      | One, BNC   |
| Type        | Composite PAL or NTSC<br>(when SD is selected on the SDI output) |
| Return Loss | >40 dB   |
| Output DC   | <100 mV  |

## Computer Monitor Output

|           |   |
|-----------|---|
| Number    | One, looping                            |
| Type      | DVI (Supports HDMI or VGA with adapter) |
| Connector | DVI-I                                   |
| Format    | Follows input                           |

## Control (BEM-1, 1F, 2, 2F)

|           |             |
|-----------|-------------|
| Number    | One         |
| Connector | 9 pin D     |
| Type      | RS-232, GPI |

## General Specifications

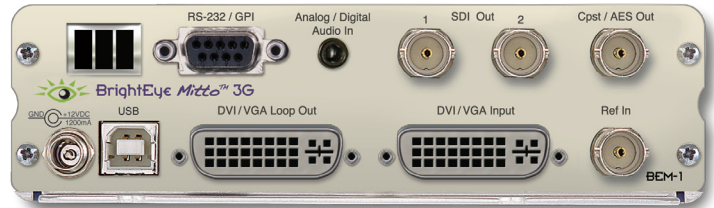
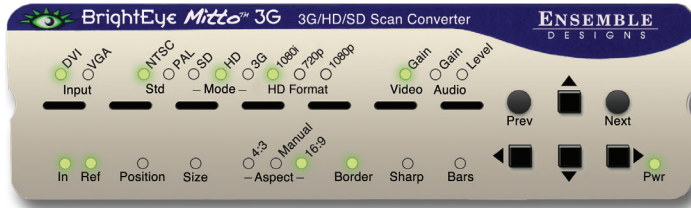
|                   |  |
|-------------------|--|
| Size              | 5.63" W x 0.8" H x 5.98" D<br>(143 mm x 21 mm x 152 mm)<br>including connectors and flange |
| Weight            | 1 lb 6 oz  |
| Power             | 12 volts, 12 watts<br>(100-230 VAC modular power supply)                                   |
| Temperature Range | 0 to 40° C ambient (all specs met)   |
| Relative Humidity | 0 to 95° non-condensing  |
| Altitude          | 0 to 10,000 ft.  |

Due to ongoing development, prices and specifications subject to change without notice.

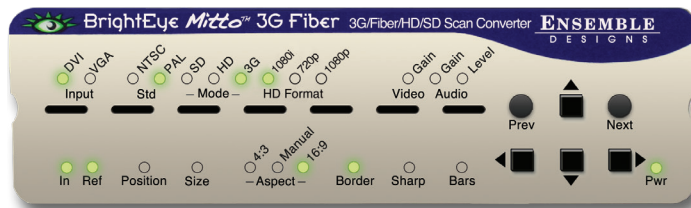
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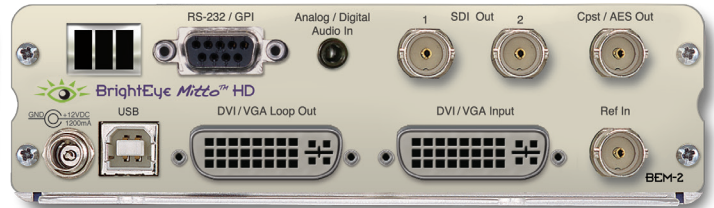
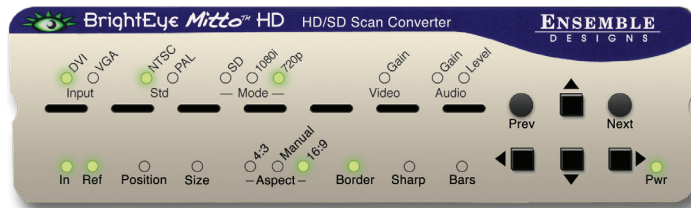
### BrightEye Mitto 3G – BEM-1



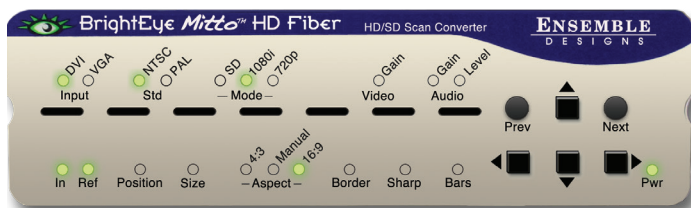
### BrightEye Mitto 3G Fiber – BEM-1F



### BrightEye Mitto HD – BEM-2



### BrightEye Mitto HD Fiber – BEM-2F



### BrightEye Mitto Pro 2 – BEM-4

