

# BrightEye Mitto

## 3G/Fiber/HD/SD Scan Converters

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### 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 corporate events, high-end military, medical, classroom, church and broadcast. All Mitto units accept VGA, DVI and HDMI input signals from PC and Mac computers.

### Choose the Functionality You Need

Six 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, PowerPoint presentations, emails and maps to video. 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!

### BrightEye Mac and PC Software

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

### Features

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- **High Performance Scan Converter for PC and Mac**
- **Best way to bring PowerPoint™ YouTube™, Skype™, Maps and Emails to Video for Production Use**
- **Superior Quality – Proprietary Scaling and Filtering System Provides Maximum Detail, Flicker-Free Video Output**
- **Use with all Types of Macs and PCs including Laptops, iPhone® and iPad™**
- **Intuitive Front Panel Controls**
- **Output Choices: 1.5 and 3 Gb/s HD, SD SDI, Composite Video, Fiber Optic**
- **DVI I/O, VGA and HDMI Support with an Adapter**
- **Auto senses DVI or VGA**
- **Choose a Mitto with Adjustable Audio Delay for Skype and On-line Video Applications**
- **Use a Mouse to Select the Part of the Video You Want to Output**
- **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**

### Easy To Use

BrightEye PC/Mac software runs ovetop of any video, website or software. The Selection Tool shows up as a 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.

# BrightEye Mitto 3G/Fiber/HD/SD Scan Converters

Position

Output full screen SD or HD SDI video



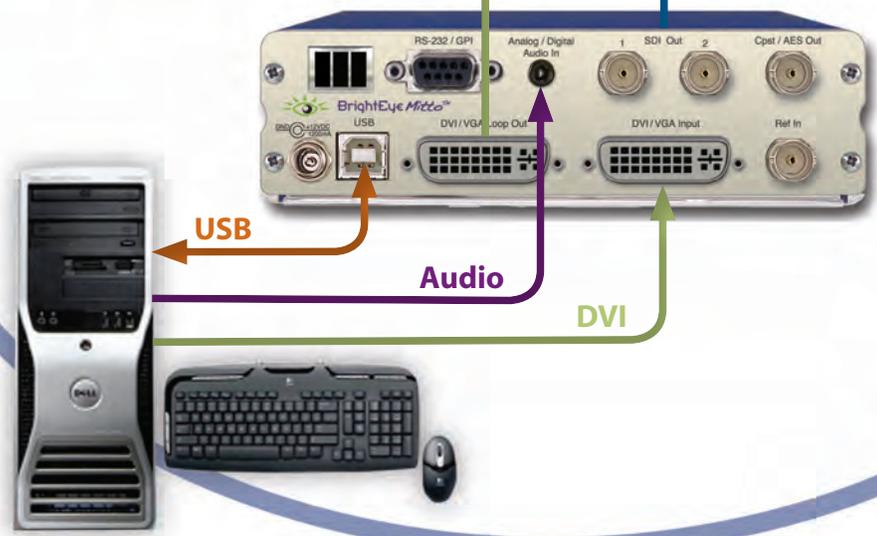
*Even a small part of the computer screen, such as a YouTube video, is flawlessly upconverted to full screen HD SDI.*



Size

Click and drag to move and resize selection

SDI Video  
HD, SD or 3Gb/s



*Typical Mitto Connection*

*"Ensemble's BrightEye gear met our requirements, including 12-bit accuracy, operation between minus 20° and plus 50°, and the ability to withstand constant vibration. BrightEye hardware has been running trouble-free for thousands of flight hours in New York and Los Angeles."*

*~ Steve Cudnofsky, Systems Designer and Quality Control Manager, Geneva Aviation*

# BrightEye Mitto

## 3G/Fiber/HD/SD Scan Converters

### 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.

### 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.

### Six 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 Fiber BEM-3F	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	★	★	★	★		

### Used Worldwide

BrightEye's compact size lets you put conversion right where it's needed: in a ballroom, breakout room, backstage graphics workstation, playout workstation, a remote truck, at a live venue, or even on a helicopter. Reliable and easy to install, BrightEyes make your event look the best, even on jumbo screens, LED and monitor walls. 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.

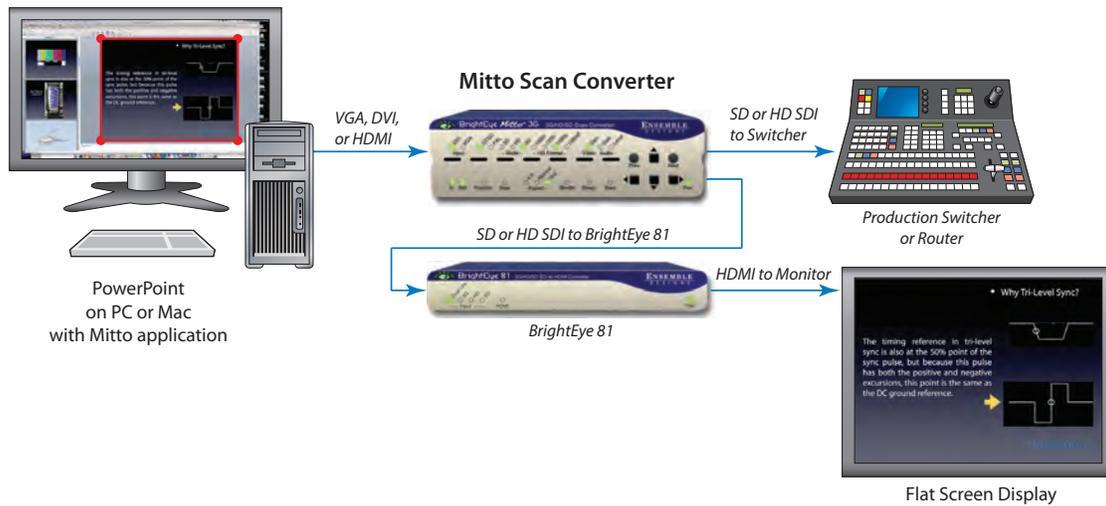
# Scan Conversion for Presentations

## Ideal for PowerPoint and Keynote

### Presentations Made Beautiful

Use BrightEye Mitto to show the full PowerPoint on the screen to the group and still keep the presenter's display on your computer for complete control. Use the BrightEye Mitto to select the PowerPoint window on your computer.

BrightEye Mitto converts the selected area on your computer to SD or HD SDI video for input to a monitor, projector, router or video production switcher.



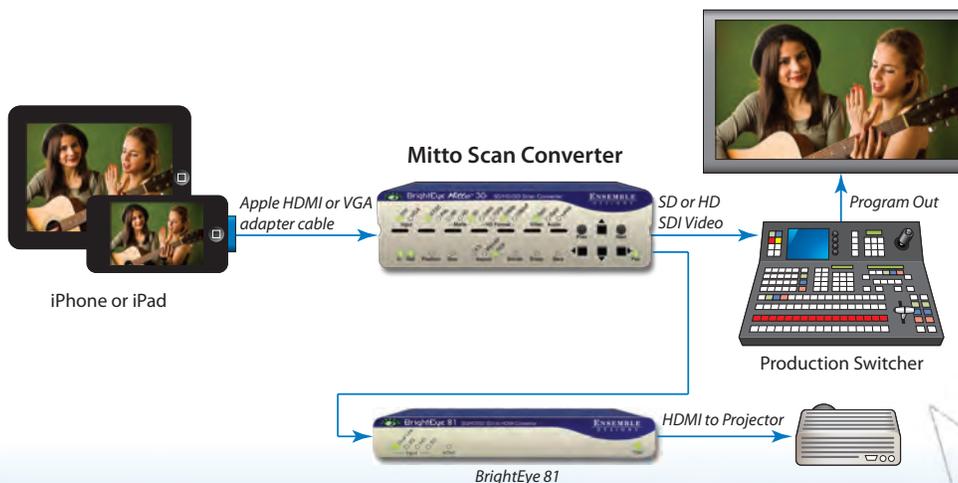
# Scan Conversion for iPhone and iPad

## Convert Video from Your Mobile Device into Digital Video

### High Quality Scaling

BrightEye Mitto is a high performance scan converter that provides a new way to take just about any source to 3G, HD or SD SDI video. The BrightEye Mitto converts iPhone or computer material to SD and HD SDI video for input to a router or production switcher for use in video production applications.

Use a standard cable from Apple to connect the VGA or HDMI port on the iPhone or iPad to the Mitto's DVI input. Mitto automatically scales the iPhone video to HD, SD or 3 Gb/s video. BrightEye Mitto has a reference input allowing the video output to be timed to house.



# Scan Conversion for Interviews

## Use Skype™, iChat™ and Facetime™ in Your Production or Live Show

### Skype Interviews Made Easy

Use BrightEye Mitto with applications such as Skype, iChat and Facetime to bring interviews into your video production. You can have one or more video windows open on your computer.

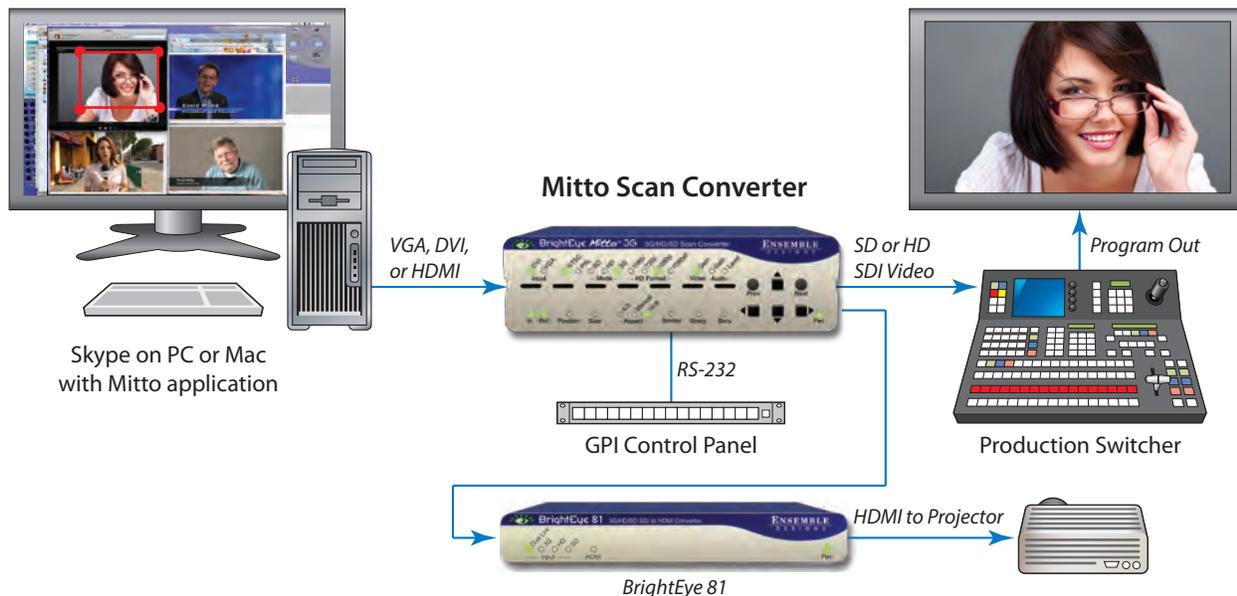
BrightEye Mitto converts the area you select to SD or HD SDI video for input into your video router or production switcher.

### Memory Registers and GPI

Use BrightEye Mitto's memory registers to store and recall specific selections. For example, if you have four video interviews or windows up on your computer monitor, select window 1 and save that selection

to Mitto's memory register 1; window 2 to memory register 2, and so on. And you can pre-set a selection that shows two video windows together, a two-shot. This is great for an interview segment. Memory registers can be recalled from the BrightEye Mac or PC software, or from an external GPI panel. You can even use this as a mini master control system and switch between eight different video sources from one computer.

Mitto's audio delay controls let you adjust the audio stream with respect to the video in order to get the lip-sync right.



# Scan Conversion for Medical Applications

## Extremely Detailed Video Output for Operating Environments

### Exclusive Filtering and Scaling Technology

The BrightEye Mitto is a high performance scan converter that takes a progressive computer output, either DVI or VGA, and converts it into high quality 3G, HD SDI, or SD SDI video. The high quality 1080p 3 Gb/s video output is perfect for distributing signals from medical devices such as MRI machines, endoscopes, and X-ray machines.

Nearly all medical devices have a 1080p digital output via DVI. Selecting a lesser resolution from the device in order to convert this signal to HD SDI results in the loss of subtle color differences and gray scale necessary to accurately evaluate the medical imagery. In addition, this imagery often has to travel great distances to classrooms and supporting hospitals for evaluation, making a fiber optic 3 Gb/s output a necessity. The BrightEye Mitto 3G Fiber, with its exclusive 3 Gb/s (1080p - 1920x1200) HD SDI electrical and fiber optic output, is the perfect solution.

Connect the 3G output from the medical device to the BrightEye Mitto via the DVI input port. Please note that Mitto is expecting a progressive format coming from a computer device. It will not work with an interlaced signal. Connect the loop through DVI output from the Mitto to the local monitor in the operating theater.

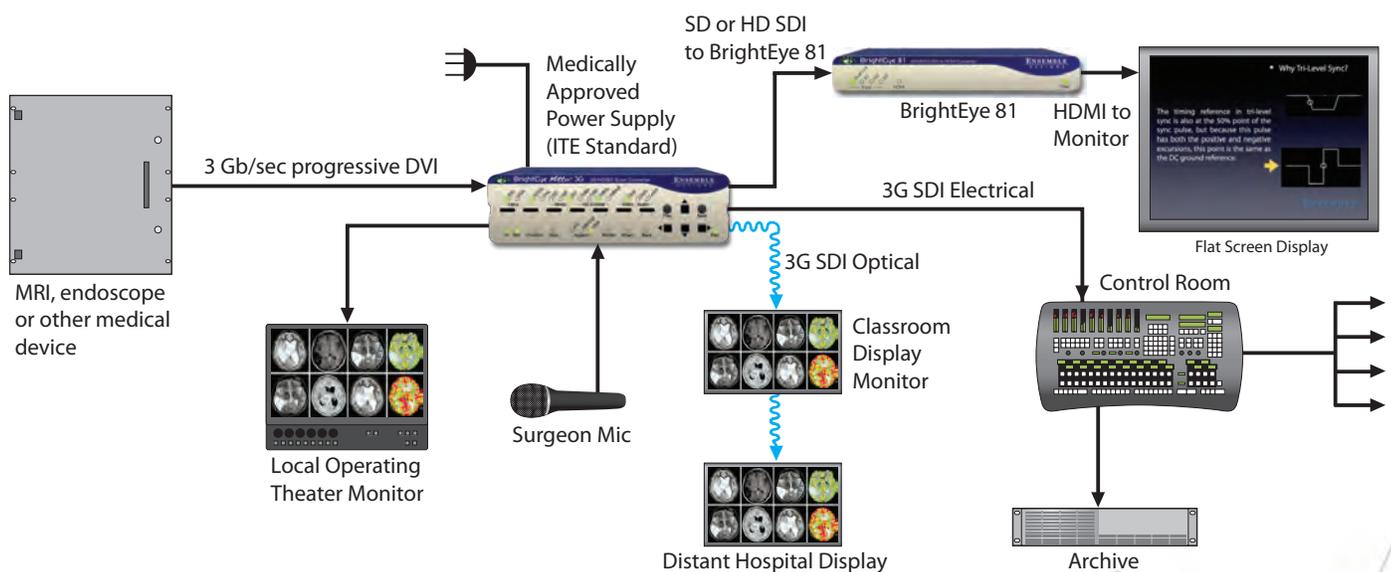
If the Mitto is to be used inside an operating environment, it is a necessity that it be connected to

a medically approved power supply (ITE Standard). Ensemble Designs has these power supplies available. Be sure to specify this when placing an order with your BrightEye Mitto rep.

From the Mitto front panel or in the Output Tab in the BrightEye Mac or BrightEye PC software, configure the HD Format to 1080p by clicking and holding the pull down bar. Select whether the standard is NTSC or PAL in the Standard pull down bar. In the Mode pull down bar, select 3G.

If the surgeon or technician will be providing commentary during the procedure, a lapel mic may be connected directly into the audio input jack on the back of the unit. The audio will then be embedded into the SDI stream for distribution.

The 3G SDI output of the Mitto is available electrically via the SDI output BNC. In addition, a fiber optic SDI output is available in the Mitto 3G Fiber. Many teaching hospitals will connect the electrical output to a control room for mixing with cameras and other graphical devices before distribution or for archival purposes. The fiber optic output is then routed to supporting hospitals or classrooms across campus, or cross-country, maintaining the high quality necessary for proper evaluation and diagnosis.



# Scan Conversion for Worship

## Song Lyrics and Skype from Your Computer to Your Congregation

### Songs and Hymns

You can easily select just a portion of the song or hymn lyrics for projection. No need to show the entire computer desktop, select just the section you want to project. BrightEye Mitto converts the selected area to SD or HD SDI video for input to a video router, projector or production switcher.

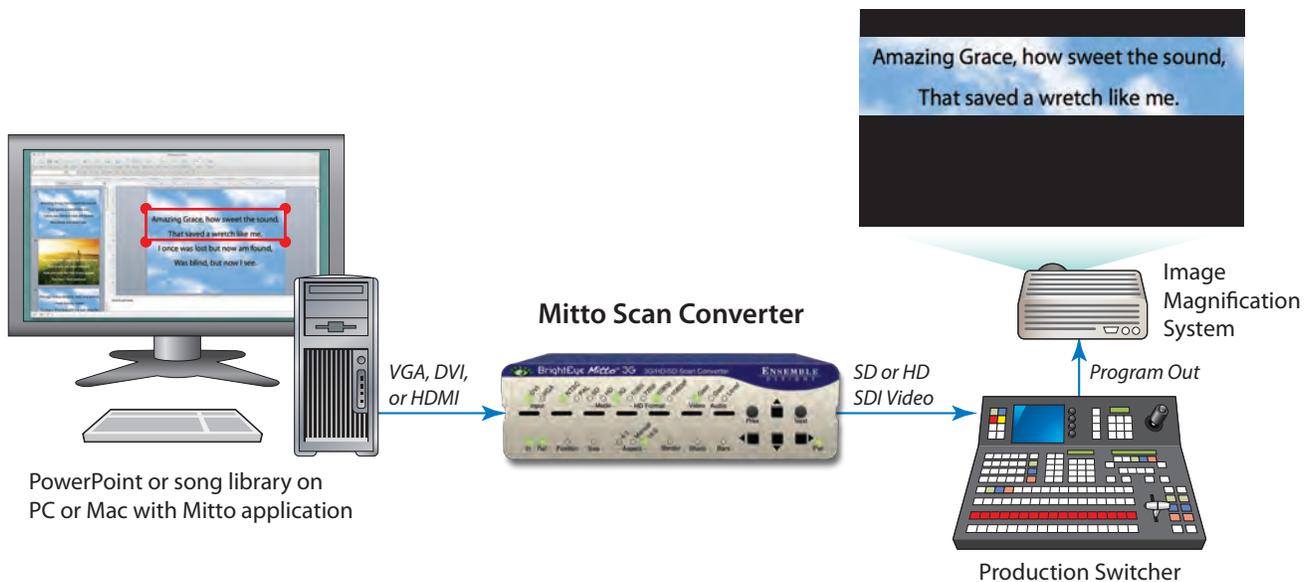
### Missionary Interviews via Skype Made Easy

Use BrightEye Mitto to show an interview with a missionary or off-site guest. You can select just the Skype™ or YouTube™ video window and feed that to Mitto and then to a projector or video switcher.

### Audio Delay for Lip Sync

BrightEye Mitto's audio delay lets you adjust the audio stream with respect to the video and get the lip-sync right, which is crucial for Skype applications.

A superior quality scan converter, BrightEye Mitto uses new, proprietary scaling technology and exclusive multi-tap filtering to ensure the video output looks superior. The filters automatically adjust in accordance with the conversion being performed.



# Scan Conversion for Teleprompting

## Cost Effective and Simple

### Effective Teleprompting Solution

The BrightEye Mitto scan converter can be used with applications such as Microsoft Word or PowerPoint™ to provide an effective teleprompting solution without breaking the bank.

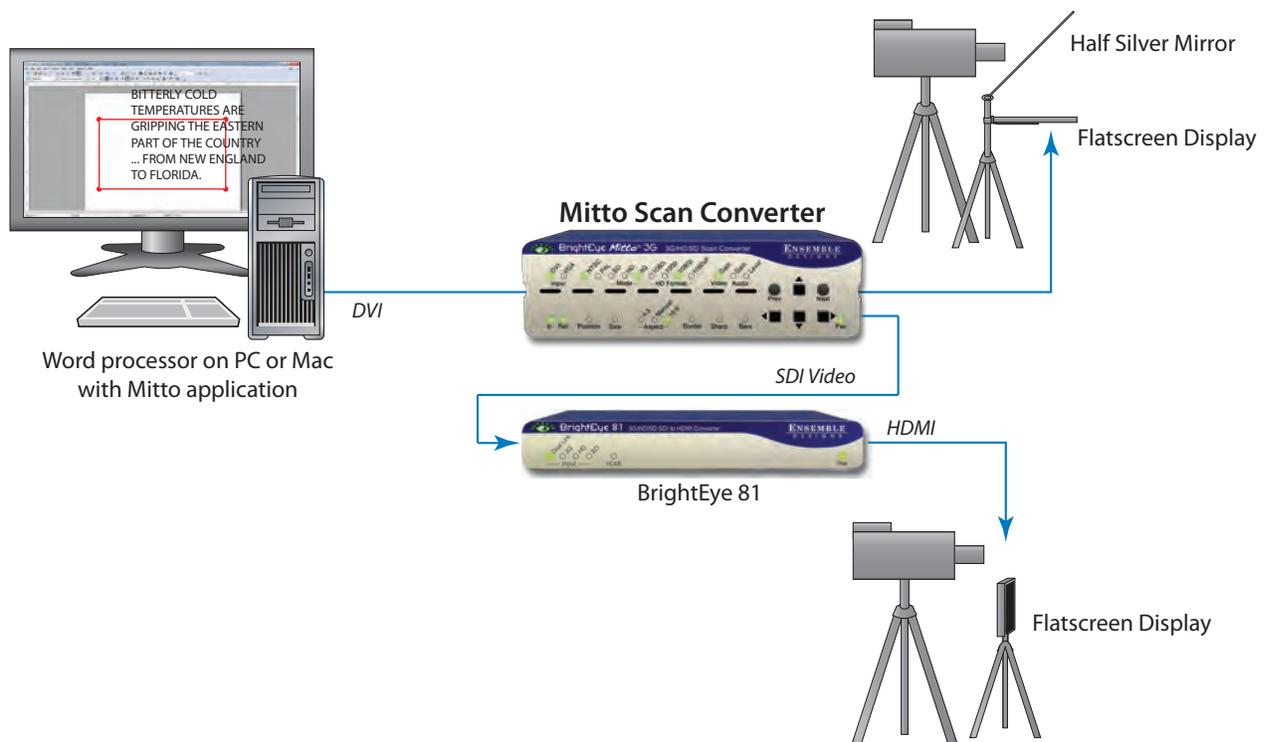
Compose the script for teleprompting using word processing software such as Microsoft Word. For best results, use a bold, sans serif font of sufficient size to be easily read. Double spacing the document may help in making scrolling text easier to read.

Using the selection tool in the BrightEye software, or the front panel controls on the Mitto itself, define a "slot" through which the text will scroll. This window should be roughly three or four lines of text tall to allow the talent to see more than the single line of text he is speaking.

Once the area is defined, Mitto will scale the text to fill the monitor, making the script easy to read.

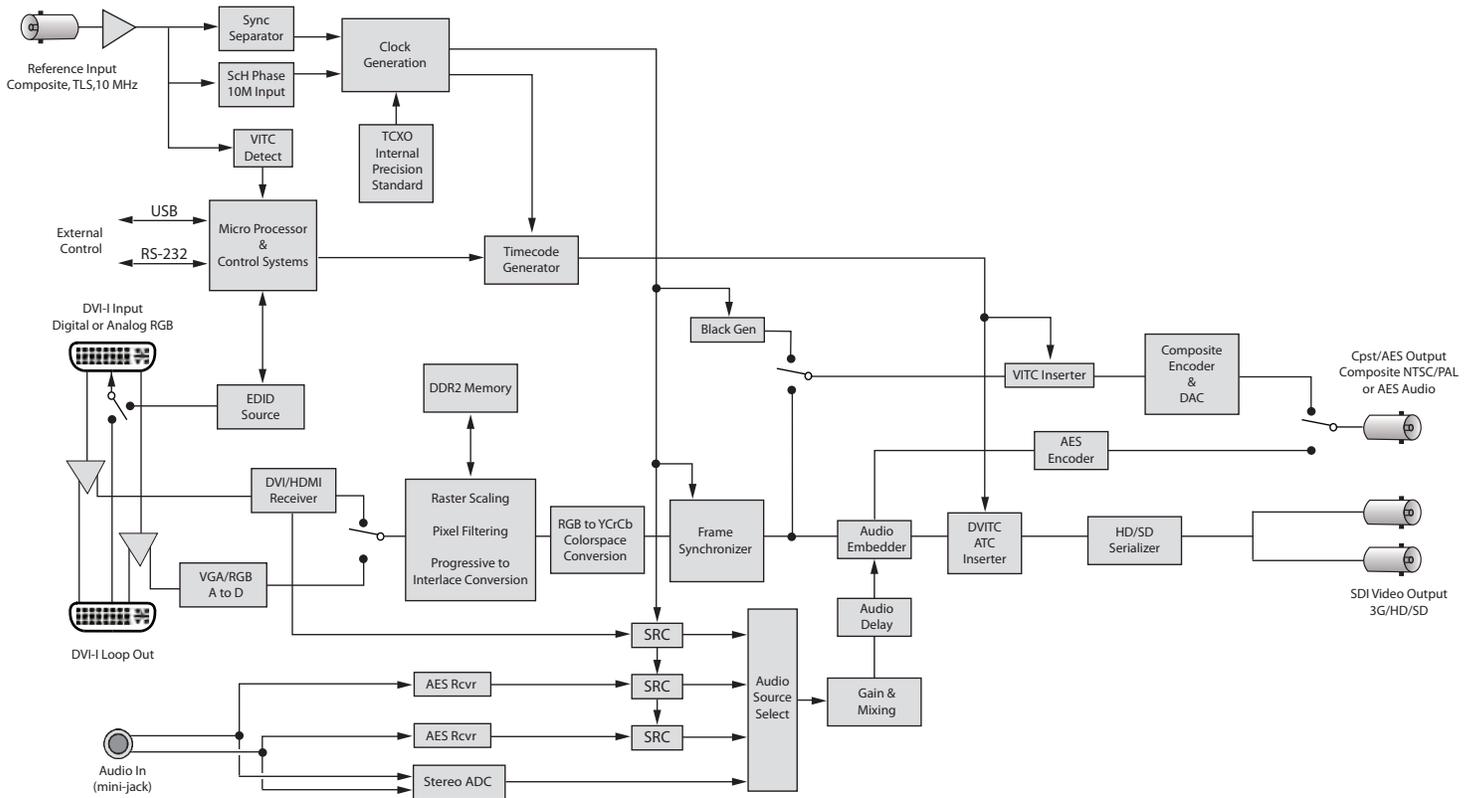
Displaying the script for prompting can be accomplished by either placing a flat screen display just under the camera lens facing the talent, or by placing a half silvered mirror in front of the camera lens. A monitor can then be set on the floor in such a way that it reflects on the mirror for the talent to read.

To scroll the text as the talent is reading, simply use the scroll bars in the word processing software. The text will scroll through the window as the presenter reads.



# BrightEye Mitto

## 3G/Fiber/HD/SD Scan Converters



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-3F	BrightEye Mitto Pro Fiber
BEM-4	BrightEye Mitto Pro 2

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

### Mitto Defined:

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

# BrightEye Mitto

## 3G/Fiber/HD/SD 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 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, 2F and 3F 270 Mb/s SD SDI, SMPTE 259M 1.485 Gb/s HD SDI, SMPTE 274M, 292M, 296M 2.97 Gb/s HD SDI (BEM-1, BEM-1F only) SMPTE 424M, 425M
Processing	16 bit processing 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 >10 dB to 2.97 GHz
Output DC	None (AC coupled)

### All Mittos support:

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)	

### BEM-1, BEM-1F, BEM-2 and BEM-2F also support:

1080sF (RP211 -14,15,16)	23.98, 24, 25 Hz
1080p (SMPTE 274M -9,10,11)	23.98, 24, 25 Hz

### BEM-1 and BEM-1F also support:

1080p (SMPTE 424M, 425M),	50, 59.94, 60, Level A
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### Optical Output (BEM-1F, 2F, 3F)

Number	One, LC/UPC
Type	Follows SDI configuration
Wavelength	1310 nm (non-CWDM) Wavelengths 170 nm –1610 nm at 20 nm CWDM spacing available. 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 Multi-mode compatible with attenuation at transmit end

### Analog Video Output

Number	One, BNC
Type	Composite PAL or NTSC (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	5.625"W x 1.7"H x 5.5"D (143 mm x 20 mm x 140 mm) including connectors
Weight	1 lb 6 oz
Power	12 volts, 12 watts (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.