

# Fusion



The **Zaxcom Fusion** is a high resolution audio mixer and recorder for reality television, surround recording and ENG. Lightweight and power efficient, it replaces multiple mixers and portable recorders that are currently used to mix audio for recording to camera via RF link or hardwired cable.

Building on the **Deva** location recorder the **Fusion** has an extensive software and hardware history based on the continuous refinement of our location recording technology.

The functions of mixing, recording and audio effects are seamlessly integrated providing features, functionality and audio quality unobtainable with separate solutions. **Fusions** eight mix busses are a perfect match for the new generation of ENG cameras that record four to eight tracks of audio.

The **Fusion** is ideal to use with **Holophone™** and **Soundfield™** microphones.

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# Fusion FEATURES

## TOUCH SCREEN INTERFACE

**Fusion's** full color touch screen interface is the key to ultimate functionality. It provides instant control of over 300 mixer cross points and over 200 user parameters. It's easy to read in direct sunlight and offers a lock feature to prevent accidental operation.

## ANALOG INPUTS

**Fusion** incorporates eight very low noise, low distortion microphone preamps with 48V phantom power. Many Emmy® and Oscar® winning productions have been recorded with the **Zaxcom** preamp. The transformer-less design enhances audio quality by eliminating low frequency distortion common in transformer-based microphone preamps. Each of the eight inputs can be switched between mic and line level operation and feature a powerful 48V phantom power supply.

## ANALOG INPUT LIMITER

The **Fusion's** analog input limiter prevents high level audio from clipping the A-D converter in the analog domain.

## DIGITAL INPUTS

The **Fusion** has four AES input pairs with sample rate conversion, allowing each input to have a different sample rate. This is key on location where it's not always possible to lock external AES sources.

## MIXING

**Fusion** can mix 16 inputs to eight output busses and records up to eight tracks\* on the internal Compact Flash card. The mixer has infinite routing capability: any input can be routed to any output pre-fader, post-fader or phase inverted.

The **Deva Mix-12** control surface can also be utilized to form an all digital location recording and mixing package.

## RECORDING

The **Fusion** records simultaneously to two Compact Flash cards creating a 100% solid-state recording with backup. CF cards were chosen because of their immunity to extreme temperature and motion.

Audio is recorded in two separate file formats, MARF and FAT32. The main CF card records in Mobile Audio Recording Format (MARF) which is designed to be fault tolerant ensuring that if power is lost during a recording all audio up to that point is recoverable. The MARF system and its audio-centric operation has eliminated several of the reliability issues associated with FAT32 recordings.

The backup card records on the common FAT32 file system so cards can be given away to post or copied to any computer.

## CAMERA/STEREO RF LINK CONNECTION

**Fusion** connects directly to the 10-pin Hirose connector located on most cameras, providing a two channel camera feed with audio return. It can also connect to a **TRX900AA** transmitter with an **STA100 Stereo Adaptor** for a two-channel camera RF link with return audio and time code transmission. All audio connections are balanced line level which eliminates the mic level ground loop noise common in FM wireless systems. The **Fusion's** camera output level is 0dBu and is directly compatible with most cameras without the use of external amplification.



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\*optional

# FEATURES CONTINUED

## METERING

The **Fusion** provides metering of all input channels and output busses in four different formats based on user preference. Channel metadata is superimposed on meters to aid in meter identification. Signal levels are color coded to aid in rapid identification of overload conditions and touching a meter selects individual channels for PFL solo monitoring.

## FIREWIRE PORT

**Fusion** acts as a master to power and control external FireWire hard drives and DVD-RAM drives.



## RF INTERFERENCE PROTECTION

The **Fusion** was designed from the ground up to operate in close proximity to sensitive receivers. Wireless devices can coexist in the sound bag with the **Fusion** running from the same power source.

## TIME CODE

A full-featured SMPTE time code interface is standard. All common frame rates and time code modes are supported including auto-load. The **Fusion** can automatically enter record and stop based on incoming time code. The **Fusion** timecode clock keeps running even when the power is off.

## INPUT SAMPLE RATE CONVERSION

**Fusion** will accept any unlocked AES signal with a sample rate of 32KHz to 192KHz. The dynamic range of the sample rate conversion is 124dB offering completely transparent conversion of digital audio from one sample rate to another.

## EFFECTS PACKAGE\*

The Effects package is unprecedented in a portable mixer for location use. **Fusion's** powerful 32 bit floating point DSP provides three-band EQ with peak or shelving filters, notch filters, soft knee compressor, expander and delay on every channel.

A software based effects package ensures there are never any differences channel to channel due to passive component ageing. A **Fusion** will sound just as good today as it will 10 years after it was purchased.

All effects are constant delay so a channel with EQ has the same phase and delay as a channel with no EQ selected.

## EQ

The **Fusion** has six filters per channel. The EQ is phase accurate channel-to-channel and totally adjustable. Shelving and pass band filters are displayed graphically and sound alike on any channel they are assigned to. EQ filter audio quality and flexibility cannot be equaled with an analog EQ system. Two notch filters per channel are an excellent tool to remove any periodic noise such as 60/120Hz hums, lighting ballast noise, etc.

## COMPRESSOR

A full-featured soft-knee compressor is optional on each input channel and standard on each bus output, this is a total of eight or 16 compressors. Ratio, Threshold, Attack, Release and Makeup Gain are all controlled separately on each channel.

## EXPANDER

The Expander is a great new tool that expands the dynamic range of audio. This function can be used to lower the noise floor of a noisy microphone or recording environment. When mixing a large number of channels the expander is useful in limiting the increased noise floor contributed to by having multiple channels to a mixed track.

The logo for Zaxcom, featuring the word 'Zaxcom' in a bold, italicized, sans-serif font. The 'Z' is particularly large and stylized.

\*optional

# Fusion

# SPECIFICATIONS

## INPUT

Analog inputs: 8 Mic/Line level with 48V phantom power  
Connectors: XLR  
Analog Dynamic Range: 117dB  
Mic level range: -56dBu to -26dBu  
Line Level input range: -10dB to +8dB  
Distortion: 0.001%  
Frequency Response: 20Hz to 22kHz at 48kHz sample rate  
THD + Noise: 0.001%  
Input Clipping Level: +28dBu  
Mic Powering: 48V phantom  
Input Limiters: 8  
Digital inputs: 8 (4 AES pairs with sample rate conversion)  
Digital input connector: DB15 mini  
High pass filter: 20Hz to 220Hz adjustable

## OUTPUT

Analog outputs: 6 Balanced 0dBu at -20dB FS digital  
Analog output connector: DB25  
Digital: 4 AES pairs (8 channels)  
Line Output Clipping Level: +20dBu  
AES output user selectable: Mix or Direct out

## INTERNAL MIXER

Mixer type: 32 bit floating point DSP  
Mixer cross point: 16 input x 16 output  
(Pre-fader / Post-fader / Phase Inversion)  
A-D / D-A Conversion size: 24 bit  
Head Room: Selectable 12 – 20dB

## EFFECTS (Optional)

EQ: 3 band parametric selectable shelving or peak type  
Notch filter: 2 band 20Hz to 20KHz frequency range adjustable  
Compressor type: Soft Knee  
Compressor adjustments: Attack, Release, Threshold, Ratio, Make-up Gain  
Expander Adjustments: Attack, Release, Threshold, Ratio

## RECORDING TRACKS

4 Tracks: Standard  
6 Tracks: Optional  
8 Tracks: Optional

## DATA STORAGE

Internal: 2 Compact Flash Card slots  
External: Disk interface: IEEE 1394 FireWire port with host mode control (supports many DVD-RAM and external hard drives)  
FireWire host power: 15 Watts  
Pre-Record: 0-10 seconds

## FILE FORMATS

Internal Slot 1: Mobile Audio Recording Format (MARF) II  
Internal Slot 2 / External: FAT32 writing Broadcast Wav mono or poly  
File Resolution: 24 bit or 16 bit selectable  
Sample Rate: 44100, 47952, 48000, 48048, 88200, 96000, 96096, 192kHz\*

## MISC.

Delay: 0-60ms per channel  
High Pass Filters: 30Hz to 220Hz adjustable, 6dB per Octave  
PS2 Port: Supports Zaxcom recommended PS2 compatible keyboards  
Display: Full color LCD touch screen  
Meters: Vertical or horizontal, user selectable  
Size: 10.6" x 7.7" x 3.2"  
Weight: 5 lbs w/out battery

## POWER

Internal: NP1 12-18V – 8 hours of usage (Li-ion)  
External: 10-18 VDC  
Battery Meter on LCD display



\*Up to 4 tracks max