

# Press Release



## Reduce Noise with the SM03

**SingMai Electronics has introduced the SM03, an MPEG pre-processor for analogue video sources.**

With the analogue transmission switch-off either progressing or completed in many countries, today's preferred transmission medium is digital, e.g. DVB-T, DVB-C, DVB-S or IPTV. However the source material in a lot of cases is still analogue, e.g. NTSC or PAL.

The MPEG compression that is used for digital transmission standards demands very high quality sources else it will, itself, generate noticeably worse digital artefacts such as blocking or picture break-up, especially if the compression ratio is high.

The problem arises because MPEG compression looks for motion in video images, effectively sending only image differences between subsequent frames. Unfortunately noise and motion have very similar characteristics and the MPEG encoder cannot distinguish between them; valuable transmission bandwidth is therefore used just to transmit noise requiring a wider transmission bandwidth to achieve acceptable image quality. The SM03 is designed to remove the noise freeing up the transmission bandwidth for the broadcaster to add additional channels or services and for a better viewer experience.

The SM03 provides three basic techniques to optimize the analogue video source. The first of these is the provision of a very high quality video decoder. The function of the video decoder is to separate the composite video into its component parts, basically the brightness component, the luma, and the colour component, the chroma. Most MPEG encoders have an inbuilt video decoder but most also actually produce artefacts that are latterly very difficult if not impossible to detect and remove. For example you may have noticed on certain black and white check suits and clothes that a shimmering colour appears. This noise component is actually generated by the video decoder and of course uses up transmission bandwidth. The sophisticated SM03 video decoder is virtually artefact free. In addition the SM03 video decoder has a special mode that can recover 'lost' information from all video tape sources allowing higher quality broadcasting and transcription to alternative storage mediums.

Secondly noise in the signal is reduced using a motion adaptive recursive video noise reducer. The noise reducer has been optimized over many tens of hours of viewing of video images and provides an ideal compromise between motion blurring and effective noise reduction. The noise reducer is ideal for removing video tape noise, film grain noise or transmission noise. A set of additional low pass filters may also be used to further reduce noise and transmission bandwidth requirements for highly compressed transmissions allowing the broadcaster to optimize his bit rate.

Thirdly the SM03 has a full frame synchronizer that reduces line to line jitter in the original image and can remove horizontal 'tearing' from video tape sources or other mechanically scanned sources.

The suite of features offered by the SM03 presents the MPEG compressor with a pristine, artefact and noise free video source allowing higher degrees of compression for the same image quality.

SingMai Electronics is a Thai company that is utilizing its decades of electronics design expertise to provide customers with innovative and cost-effective solutions to their video, imaging and broadcast requirements.

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