# Using the BLU-101 & BLU-HIF

This design file for the Soundweb™ London BLU-101 & BLU-HIF provides the functionality required for a small conferencing system.  This design utilizes Acoustic Echo Cancellation for Audio and Video Teleconferencing applications.

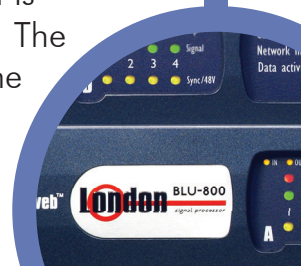This system has the following features:
- ~ 9 Microphone inputs with Acoustic Echo Cancellation [AEC]
- ~ Stereo Line level input for multi-media
- ~ BLU-HIF for audio interface to headset jack of a VoIP/digital phone
- ~ Separate outputs for: Record and the Assisted Listening System [ALS]
- ~ 4 separate speaker zones
- ~ Separate signal paths for Dry and AEC microphones for voice lift applications

The BLU-101 is a very cost effective Digital Signal Processor for conferencing applications where an external conferencing solution is provided.  The BLU-101 allows up to twelve AEC inputs in the system.  This file illustrates the correct method for processing the AEC and DRY microphone signals and how to correctly route their AEC reference. The BLU-HIF Telephone Headset Interface facilitates connection of the headset jack of a VoIP/digital phone to an AEC input and analog output of a Soundweb London device.

The BSS Audio method of AEC is a frequency based algorithm not a time based algorithm.  Because of this, it is important to process both the referenced and un-referenced signal paths with the same settings.  To accomplish this we utilize N-Input processors at the outputs to maintain continuity between the two signal paths.  When configuring AEC in the BLU-101 or BLU-102, it is important to place the AEC processing at the input, before any additional processing.  The BLU-HIF input is run through an unused AEC path.  The output signal to the BLU-HIF is routed to the AEC reference for this channel to remove the sidetone that would normally exist in the earphone of a headset.

The outputs to the Matrix Router have been named to help identify which signals need to be routed to which outputs.  For the speaker outputs, the Matrix Router is labeled as 'Non Mics to Speakers' and 'Mics to Speakers'.  The 'Non Mics to Speakers' output is for the Media and the BLU-HIF signals.  This is the signal path that will be routed to the AEC reference just before the output.  This effectively removes these signals from the microphone inputs at the AEC processing block, preventing any echo at the far side. The 'Mics to Speakers' output from the router should only be used if local voice lift is required.  If this feature is not needed, simply turn off this cross point in the router.  The router is already correctly configured to allow the AEC processed signals to feed the BLU-HIF, ALS and record outputs.