

# CEDAR



## Trinity Enhance guidance notes



Trinity Enhance speech enhancement is available on several CEDAR platforms. It was originally developed as part of the **CEDAR Trinity** audio surveillance system but it's now available as a module for **CEDAR Cambridge** forensic systems as well as the **Trinity Enhance** VST/AU/AAX plug-in to run on hosts such as Pro Tools, Adobe Audition and Adobe Premiere. These guidance notes apply equally to all versions.

### The four processes

All of the controls have scales from zero to 100. There are no units for these numbers.

#### motor

The **motor** control recognises repetitive patterns in noise and adapts continuously to combat them. It is very good at dealing with motor noises such as in vehicles, air conditioning noise in office environments, and other constant low-frequency noises. It is also good at reducing reverberation and echoes, wind noise, hums and some other repetitive electrical noises.

## noise

The broadband **noise** removal tool is good for removing all kinds of background noise such as low frequency road and motor noise, and background speech in café type situations. It should be used in conjunction with the **motor** control on noisy vehicle recordings and also café type recordings, especially if there is an electrical noise source (such as a refrigerator) or interfering background speech.

## background

This control will cause loud signals to be amplitude limited whilst bringing up the level of lower signals. Possible uses are in surveillance recordings when one person amongst many is some distance away from the microphone. It also works well on 999/911 calls where the operator is talking to a witness but there is something happening in the background of the recording. It should nearly always be used in conjunction with the **noise** control and where appropriate, the **motor** control, as it is important to reduce any noise in the signal before bringing up the background speech level.

## speech

The speech control enhances important frequencies in the speech band, often making the wanted speech sound brighter, more intelligible and easier to listen to. It should be adjusted after finding suitable settings for the other three controls.

## A few tips

Always start each enhancement session by making sure that the sliders are at the bottom of their ranges (i.e. all are at zero).

Next, choose moderate settings – say, in the range 5 to 10 – for the **motor** and **noise** controls and listen carefully to the processed signal. Adjust these appropriately to obtain the best result that you can.

Work on reducing any noise using the **motor** and **noise** controls before raising the **background** and **speech** controls above zero.

If the noise contained in the recording isn't appropriate for using the **motor** control, return this to zero. Using **motor** when it's unnecessary to do so can damage the wanted signal.

Raising the values of the controls too much can (and usually will) make the processed signal sound unpleasant and less intelligible. This is especially true for the **noise** and **speech** controls.

It is almost always better to retain some noise in the signal rather than to try to remove all of it. An over-processing signal will sound unnatural, be less pleasant, and will often be less intelligible.

Use the bypass control in the host system to switch the processing **off** and **on** regularly to check that what you're doing is appropriate, and to make sure that the processed signal is an improvement upon the original.