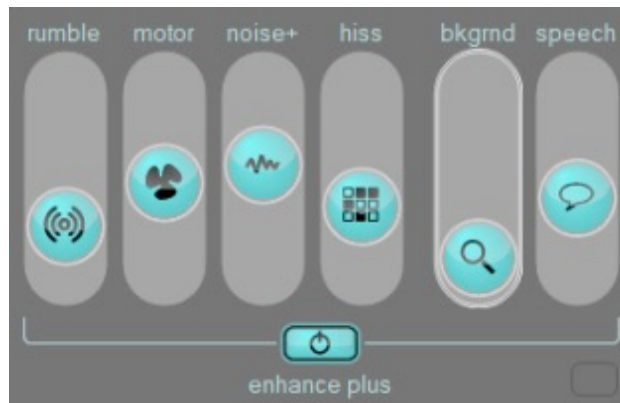


CEDAR



Enhance Plus guidance notes



Enhance Plus is available on the **CEDAR Trinity** audio surveillance system and as a module for **CEDAR Cambridge**. These guidance notes apply equally to both.

The six processes

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

rumble

The **rumble** filter is useful for removing low frequency noises such as those generated by heavy traffic, engines and gusts of wind. Using this correctly before further processing can make it possible to obtain better results from the **motor** and **noise** filters.

motor

The **motor** filter recognises repetitive patterns in noise and adapts continuously to combat them. Use this to deal with problems such as motor noise in vehicles and air conditioning noise in office environments. It can also be effective at reducing reverberation, wind noise, hums and repetitive electrical noises.

noise+

This is a further development of the **noise** filter in Trinity Enhance and is designed to remove background noises as well as background speech (babble) in recordings made in public spaces. Use it together with the **motor** filter if there is an electrical hum contaminating the audio, and with the **rumble** and **motor** filters on vehicle recordings.

hiss

The **rumble**, **motor** and **noise+** filters remove low and mid-frequency noise and can often reveal hiss and other high-frequency noises. The **hiss** filter reduces the level of such noises.

background

Use this to increase the levels of low amplitude signals within the audio, perhaps in surveillance recordings where one person amongst many is some distance away from the microphone, or on calls where an operator is talking to a witness but there is something of interest happening in the background. It is important to reduce the unwanted noise before amplifying the background, but users must also be careful not to filter out the wanted audio before using the **background** control.

speech

This enhances important frequencies to make the wanted speech sound brighter and more intelligible. It should be adjusted after finding suitable settings for the other controls.

A few tips

Always start each session with the sliders at the bottoms of their ranges (i.e. at zero). You can do so by sliding the controls or by typing 0 into the value window of each.

Now remove any low frequency noise (if present) by increasing the value of the **rumble** control.

If there are noises present that the **motor** and **noise** filters address, choose moderate settings (perhaps in the range 5 to 10) for these. Listen carefully and adjust them appropriately to obtain best results. Do not use them if they are not necessary or try to remove all types of noises with these; you will damage the wanted audio.

If the **rumble**, **motor** and **noise** filters have revealed high-frequency noise, use the **hiss** filter to remove this.

Once the various noises have been suppressed you can, if appropriate, raise the **background** and **speech** controls to reveal low amplitude sounds and enhance the wanted speech.

Raising the values of the filters too high can (and usually will) make the processed signal sound unpleasant and less intelligible. This is especially true for the **noise** and **speech** controls, so use them cautiously. It is almost always better to retain some noise than to try to remove all of it; an over-processing signal will sound unnatural and will often be less intelligible. Use the bypass control in the host system regularly while setting up the filters to check that their values are appropriate.

When using **Enhance Plus** in CEDAR Trinity, you can export your work to a **CEDAR Cambridge** system for further filtering and report generation.