

## TERMINOLOGY

**Bus:** A signal-carrying conductor or electrical pathway designed to carry multiple signals.

**Clipping:** Audible distortion occurring when the peaks of an amplifier's output are flattened ('clipped'). When the input is too high, an amplifier has insufficient power to accurately reproduce the output waveform.

**Compression (Audio):** The process of reducing the dynamic range of a given analogue audio program by making the loud parts quieter and the quiet parts louder.

**Compression (Data):** The process of packing digital data, such as computer files, more efficiently for the purpose of storage or transmission. Commonly referred to as 'stuffing' or 'zipping' a file.

**Crossfade:** A procedure in which one independent channel of information is raised as the other is lowered so that one smoothly replaces the other e.g. one audio track may 'crossfade' to another.

**Delay:** Signal processor which stores a signal for a short time before releasing it to the output. Combining the delayed and original sound allows for effects such as 'echo'. Multiple delay processors may produce 'time modulation' effects such as phasing, flanging and chorus.

**Distortion:** Any difference, apart from level, between an original signal and one that has been processed. One cause may be the overloading of the input stage of an amplifier, but many other forms of distortion, such as harmonic distortion are common.

**Dynamic Microphone:** A microphone that converts sound into electrical energy by means of a moving coil located in a magnetic field.

**Echo:** The combined effect of a sound and a delayed version of that same sound. A 'Slap-Back Echo' is the original sound plus a single repeat; "Multiple Echo" is the original sound plus several repeats with the same delay spacing.

**Expander:** A type of dynamic range processor which reduces the gain of audio signals which are under an adjustable 'threshold' level, therefore increasing the dynamic range. Generally allows the operator control over threshold, ratio, attack, release and 'hold' times. Both analogue and digital types are available.

**Feedback:** Sound produced by an instrument or microphone picking up and amplifying its own signal from a nearby loudspeaker. Also known as 'howlaround'.

**Frequency:** the number of complete cycles that a sound wave goes through in each second. Unit used is Hertz, abbreviated to Hz, although some countries still use the older term 'cycles per second' (cps). Humans perceive frequency subjectively as pitch (eg: 440Hz = A).

**Gain:** The amount by which an amplifier increases the power of a signal, indicated either in dB (e.g. Gain = +12dB), or as a multiplier (e.g. Gain = x4)

**Hertz:** (Abbreviation: Hz) The unit of frequency. Replaces 'cycles per second' and means the same.

**Latency:** The period of time between the processing of data and it's actual playback or representation on a computer system.

**Lossy Compression:** A type of data compression which permanently discards data that humans supposedly "cannot hear" to create much smaller audio, video and image file sizes. When the file is decompressed by the recipient, this compression method replaces the data for the sections it removed with calculated values to restore the file. The decompressed file is similar but not identical to the original file.

**Low Pass Filter:** A circuit that discriminates between high and low frequencies and allows only the low frequencies to pass.

**MIDI:** Acronym for Musical Instrument Digital Interface, a standard adopted by the electronic music industry for controlling devices, such as synthesizers and sound cards, that produce music. At minimum, a MIDI representation of a sound includes values for the note's pitch, length, and volume, but can also include additional characteristics, such as attack and decay time.

**Noise Gate:** A special type of expander with a very high ratio (usually about 1:100), often used to eliminate low-level hiss, noise or leakage. Especially effective wherever there is a high level of ambient noise, such as around a drum kit.

**Nyquist's Theorem:** This states that a sound must be sampled at at least twice its highest analog frequency in order to extract all of the information from the bandwidth and accurately represent the original acoustic energy. In practice, sampling at slightly more than twice the frequency will make up for imprecisions in filters and other components used for the conversion.

**Phantom Power:** Operating voltage (usually 48 Volts DC) supplied to a condenser mic by a mixer or external power source along normal mic leads.

**Reverb:** Abbreviation for reverberation, a complex blend of multiple interacting reflections within an enclosed space which combines with the direct sound from a source and defines the character of the sound in a room or hall. It is also used for a signal processor which can generate an approximation of natural reverb. (Caution: do not confuse with 'Echo' - a different effect altogether.)

**Sibilants:** High frequency sounds in speech, such as "S", "F" & "T".

**Timbre:** The combination of harmonic frequencies in voices or instruments which give them their characteristic quality. Synonyms: 'Quality', 'Sonority', 'Tone Colour'.

**Tremolo:** 1. A fluctuation of amplitude applied to a sound of constant frequency. Often incorrectly used, as in 'tremolo arm' on a guitar which actually produces vibrato. 2. For stringed instruments such as a mandolin, fast up and down strokes of equal strength of the plectrum or index finger on the strings.

**Vibrato:** Expressive effect which produces a fluctuation of pitch. A rapid, slight variation in pitch in singing or playing some musical instruments, producing a stronger or richer tone. It is often used as an expressive device.