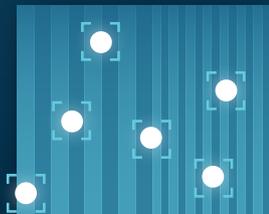
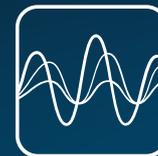


# MoreSound Amplifier™

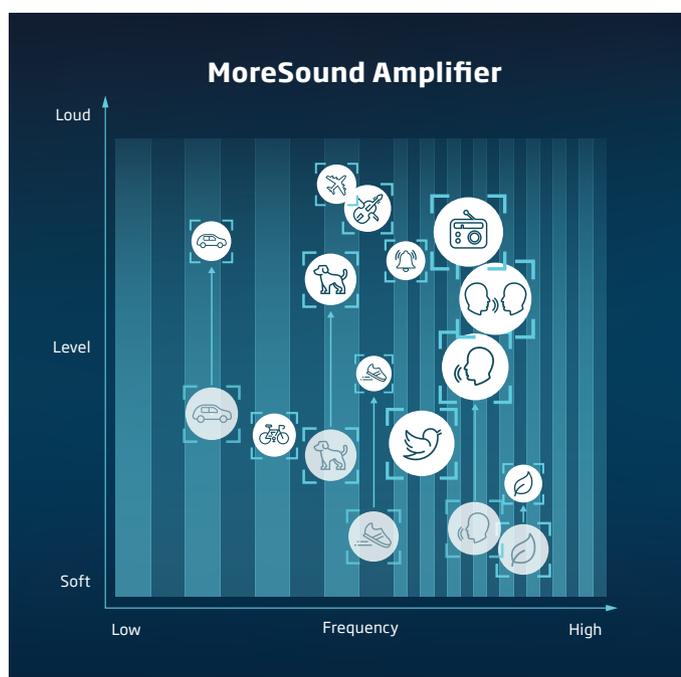


**MoreSound Amplifier (MSA)** is a dynamic and balanced amplification system that builds upon Speech Guard™ LX and takes BrainHearing™ technology to new heights by maintaining the fine contrast and balance among sounds. MSA seamlessly adapts its resolution and speed, depending on the nature of the prevailing sound scene and how it changes over time.

## Providing precisely balanced amplification of every sound

MSA follows MoreSound Intelligence™ (MSI) in the sound processing scheme on the Polaris™ platform. Once the sound scene has been properly balanced by MSI, it has to be amplified in a way that preserves this careful balance among sounds, but also conveys all their important details.

Conventional compression techniques have applied a “one size fits all” approach to amplification in hearing aids—handling all sounds in the same way, with fixed resolution. This results in some sounds being under-amplified, some over-amplified and some overly compressed. This creates an unbalanced sound experience, making it harder for the brain to make sense of what is going on around it, and deprives the listener of important details in the sound scene.



## Rapid high-resolution amplification

MSA works precisely and quickly to ensure that important details and dynamics in the sound scene are made audible and available. This rapid, high-resolution amplification system follows changes in the sound scene and provides precisely balanced amplification of every sound.

MSA is powered by the advanced Polaris platform, which allows signal processing in 24 channels. With a sixfold increase in resolution (compared to Velox S™) and an adaptive speed pilot, MSA makes the full sound scene audible while maintaining the fine



contrast and balance among sounds. The increased resolution ensures the optimal resolution is used for both speech and other sounds, giving users access to more details and dynamics of the sound scene. This provides the brain with a better neural code with which to work.

## **The right path to better sound**

MSA processes sounds through two different paths—a 4-channel path and a 24-channel path. It constantly identifies which type of information is present and what resolution (which path) should be prioritized when amplifying.

Speech and noise have different characteristics. The 4-channel path is good at processing fast modulating signals, which change rapidly in amplitude, frequency and time where high precision in time is important—this safeguards the speech envelope. The 24-channel path is good at processing stationary, slow modulating sounds that do not change much in either amplitude or frequency, where high precision in frequency is important. If a fast-modulating sound is dominant in the frequency channel, the 4-channel path takes priority. If a slow-modulating noise is dominant in the frequency channel, the 24-channel path takes priority. This constant prioritizing of processing paths depending on the incoming signal ensures the brain has access to the important information it needs to make sense of sound.

## **Adaptive amplification**

MSA uses an adaptive amplification approach that adapts quickly to changes in the input signal. MSA amplification approach:

- Uses a linear amplification window of 12 dB\*
- Adapts quickly to changes in the input signal
- Keeps sounds audible and within a comfortable range
- Preserves peaks and valleys in the signal
- Works within the input range of 113 dB SPL\*

This allows for better preservation of speech cues and other sounds in the full soundscape, giving the brain a more natural signal with which to work.



## Key takeaways

- Makes the full sound scene audible while maintaining the fine contrast and balance among sounds
- Ensures the brain has access to the important information it needs to make sense of sound
- Provides better audibility of speech in more situations, providing patients better speech understanding with less effort



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