ActiveGard® Technology

EPOS | SENNHEISER

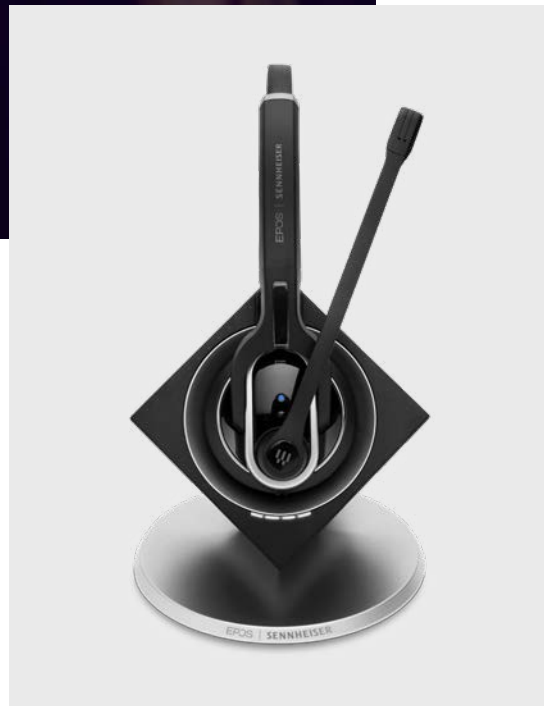
Introduction

Great sound, comfort and fit, excellent build quality, versatility, compatibility. These are just some of the many reasons for choosing a headset from EPOS. Acoustic safety is another important factor, so it is reassuring to know that EPOS Contact Center and Office (CC&O) headsets are equipped with EPOS ActiveGard®, one of the most advanced hearing protection technologies against acoustic injury caused by sudden sound bursts. This White Paper provides an overview of the technology, the regulatory background and the safety and wellbeing benefits of EPOS ActiveGard®.

Sound safety

Occasionally, heavy phone users may be exposed to potentially dangerous acoustic shock from unexpected and extremely loud sounds on the line. EPOS' patented ActiveGard® technology protects headset users from any hearing loss or damage on the rare occasions where they experience this type of incident – so that the users feel protected and secure to perform their jobs.

With the introduction of softphone-based telephony, the EPOS ActiveGard® technology has been further adapted to provide users of EPOS' digital (USB and wireless) headsets the same security and sound safety. This means that regardless of the choice of professional headset, users can be sure that EPOS ActiveGard® is always on duty to protect their hearing, ensuring that nothing unexpected gets in the way of important communications.



About ActiveGard®

Facts about the technology

First designed for EPOS' wired headsets, EPOS ActiveGard® is a sound compression system consisting of a sophisticated electrical circuit. The patented system utilizes a compression technology to remove the energy from an excessive incoming signal transmitted through the telephone system, leaving the signal free of distortion.

EPOS ActiveGard® can be compared to an automatic and fast-working "intelligent" volume control. If an incoming signal rises to a level that is harmful to your hearing, it is instantly "turned down" to a considerably lower, and more comfortable level. When the sound level returns to normal, the volume will be "turned back" to the original level after a short period of time as EPOS ActiveGard® reverts to its stand-by surveillance mode.

Compression not clipping

In many traditional wired headsets the noise limiting function is achieved by using simple diode- or transistor circuits, which activate a peak-clipping function when the headset speaker signal reaches a certain voltage. Though it may fulfill the legislative requirements, the peak-clipping technology still leaves distortion of the signal and offers only a certain degree of protection for the headset user.

Compared with a traditional system, EPOS ActiveGard® offers some key benefits and productivity-enhancing advantages:

1. The incoming signal is compressed in one controlled operation. EPOS ActiveGard® detects an excessive signal and reacts by initiating a compression process that occurs in just a few milliseconds – faster than the human ear.

2. Due to the compression method there is virtually no distortion of the signal.

3. In contrast to peak-clipping circuits, EPOS ActiveGard® removes the dangerous energy from the signal by means of this compression technique.

4. The more powerful the incoming signal is, the more powerfully the system compresses.

5. In contrast to peak-clipping circuits, EPOS ActiveGard® keeps the volume at a comfortable level, even if the incoming signal is a sound burst well in excess of the limit which is generally considered to be harmful to hearing.

Below is an illustration showing how EPOS ActiveGard® technology works compared to the traditional systems.

Listen* to the difference by clicking on the sound files below – Please be warned that the sound without EPOS ActiveGard® can be extremely high. We recommend the volume should be set low when playing:

Play sound without EPOS ActiveGard®

Play sound with EPOS ActiveGard®

* Please note that the latest version of Adobe Reader (XI) and Adobe Flash Player are needed to play the sound files. Also note that the Adobe Flash Player will not work with iPhone, iPod touch and iPad.

The regulatory background

Meeting or exceeding the requirements
The EU, the United States and many other countries have set noise limits covering the use of headsets so it's reassuring to know that all headsets meet or exceed the requirements currently in force.

The EU directive in brief
The European Union's Noise at Work Directive lays down rules for protecting hearing in the workplace. The Directive basically deals with two types of noise induced hearing damage: Acoustic shock, and excessive noise exposure throughout a working day.

Safety and wellbeing

Protection against acoustic shock
Because acoustic shock can cause either temporary or permanent traumatic damage to hearing, the Noise at Work Directive also deals with areas such as instantaneous noise exposures and sets a limit of 137dB(C) for these types of sudden loud sounds – comparable with standing next to an aircraft taking off. The Directive does not specify the duration of such impulsive noises but the International Telecommunication Union defines the limit of 137dB(C) for sound impulses with a duration of less than half a second.

Protection against excessive noise
The Directive defines two critical levels for noise exposure throughout a working day. For up to 80dB(A) the employer has no obligations. Between 80dB(A) and 85dB(A) the employer should offer hearing protection and education. For levels exceeding 85dB(A), employees must be provided with, and wear, hearing protection equipment. The IMPACT SDW 5000 Series, DW Series, SD Series, UI 770 interface box as well as CEUL 33 and CEUL 34 interface cables are just some examples that comply with the Directive.

There are a number of international telecommunication standards which have traditionally used another maximum acoustic output level that is also based on the 85dB(A) noise exposure limit. These standards define a maximum limit of 118dB(A) for long duration disturbance (above half a second), measured at the ear entrance. Since the late 1980s, the European Telecommunication Standards Institute (ETSI) has shown that this long duration disturbance limit has provided satisfactory protection against acoustic injury. All EPOS headsets headsets fulfill this maximum limit of 118dB(A).

In summary

EPOS ActiveGard® benefits
EPOS ActiveGard® patented technology
- Protects users against acoustic injury caused by sudden sound bursts
- Limits maximum sound pressure on all EPOS headsets to international telecommunication standards of 118dB (SPL)
- Keeps the volume of a sound peak at a safe and comfortable level
- Allows safer and stress-free working when using a headset

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EPOS Group A/S
Industriparken 27
2750 Ballerup, Denmark
eposaudio.com