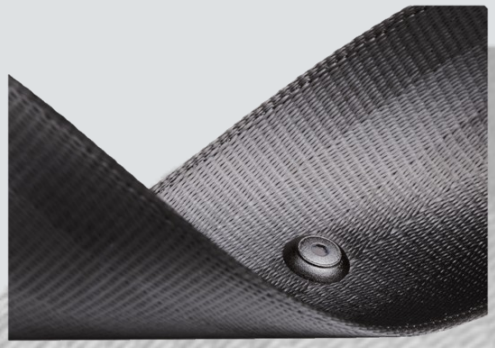
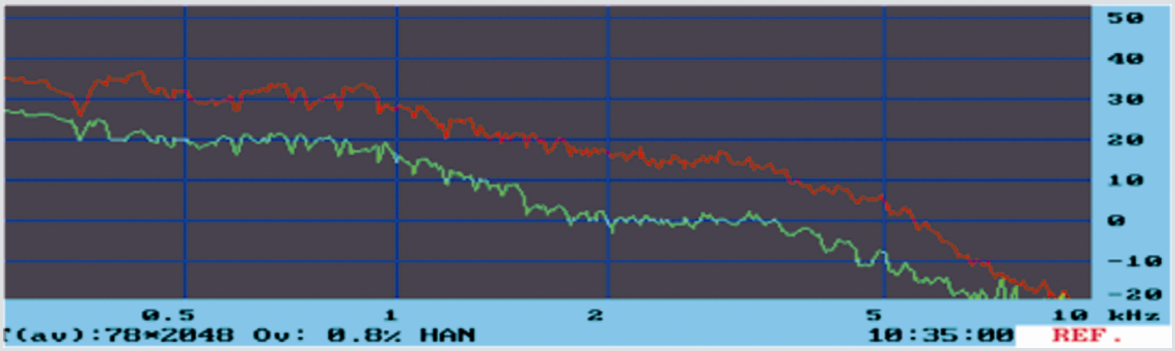
belt-mic® Belt Microphone



The belt-mic® belt microphone from paragon is revolutionising in-car hands-free systems. Its integration in the safety belt and the associated reduction in the distance to the speaker ensure a level of voice quality hitherto unachieved in comparison with conventional microphones. In addition to this, the voice recognition rate of the voice control system also increases.

With the belt-mic®, the signal-to-noise ratio is increased by approx. 10 dB and unwanted and distracting background noises are reduced to a minimum. This means that communication is possible without any problem with an open window or sliding roof and even in open cabriolet vehicles. Moreover, the best possible positioning of the microphone results in a significant reduction in the driver's distraction during the phone call. Numerous tests at acclaimed automotive manufacturers prove the convincing effect of the belt microphone, whereby the functioning of the safety belt is not compromised.

Voice comparison



Standard microphone belt-mic (suppresses background noise by more than 12 dB)

Design and function

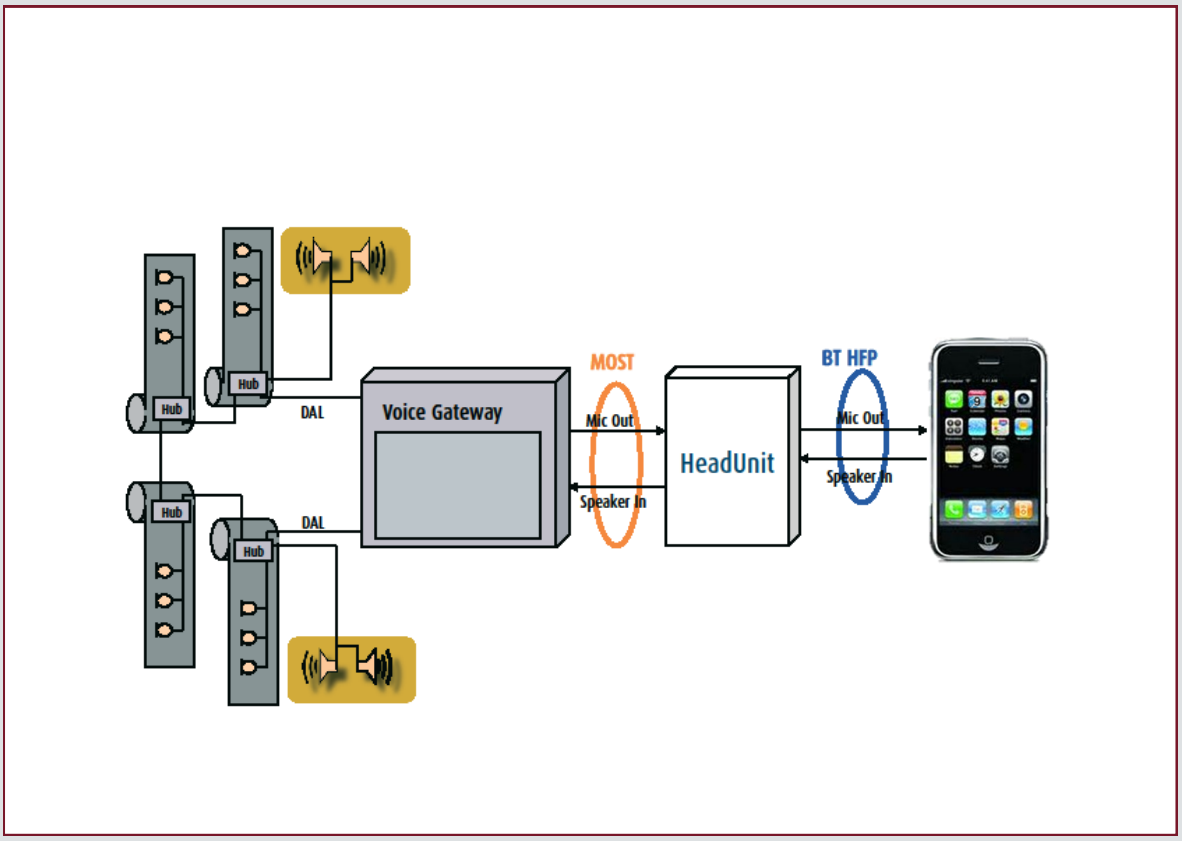
The belt-mic® system consists of three microphones which are integrated in the belt and one Audio Controller which processes the signals. The best microphone signal is selected depending on the stature and sitting position of the driver, and an optimum proximity to the source of the signal is guaranteed. The microphone is activated with a special electronic control system. Conductors that have been especially developed and are neither visible nor palpable and ensure the guidance of the signal in the belt. The optimum positioning of the microphone and the voice quality thereby achieved offer brand new possibilities for communication systems. The contact with the Audio Controller occurs via the end-fitting of the belt. The digital audio link ensures the highest signal quality with a minimum of cabling, which means that hands-free commands are possible at a previously unknown level of quality. Up to nine digital belts can be connected with the Audio Controller.

- The Audio Controller contains:
  - Hands-free functionality
  - Suppression of echo effects
  - Reduction of noise
  - Supports the passenger communication.
- The between the Audio Controller and head-unit is based on the standard audio-bus systems (e.g. MOST) used in the automotive industry.
- Analogue interfaces can also be served via the Audio Controller.
- A CAN interface is provided for management and control purposes.

Technical specifications

Characteristic value	value	Comment
Polar paten	Omni-directional	
Dynamic	> 72 dB	
Sound pressure level	115 db (k = 0,5%)	
Frequency response	100 Hz - 8.500 Hz	VDA compliant
Power consumption	< 12 mA	
Ambient noise	S / N > 65 dB	
Sensitivity	Can be aligned to 670 mV/Pa +/- 1 dB on the System	
Operating temperature	-40°C to +95°C	

Application (example)



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Award

The belt-mic® belt microphone was honoured with a highly regarded award soon after its introduction in the first production vehicle. The Society of Plastics Engineers, Inc. Europe (SPE) honoured the paragon product with the SPE Automotive Division Award for innovative plastic components in automotive design. This award is also known as the "plastics Oscar".

When conferring the award, the jury highlighted the high level of innovation offered by the belt-mic. The SPE is a worldwide association of engineers and scientists and has more than 38,000 members. The specialist jury for the SPE Automotive Division Award consists of 30 experts from the automotive industry, including representatives of the manufacturers Volkswagen, Daimler, BMW and Porsche.