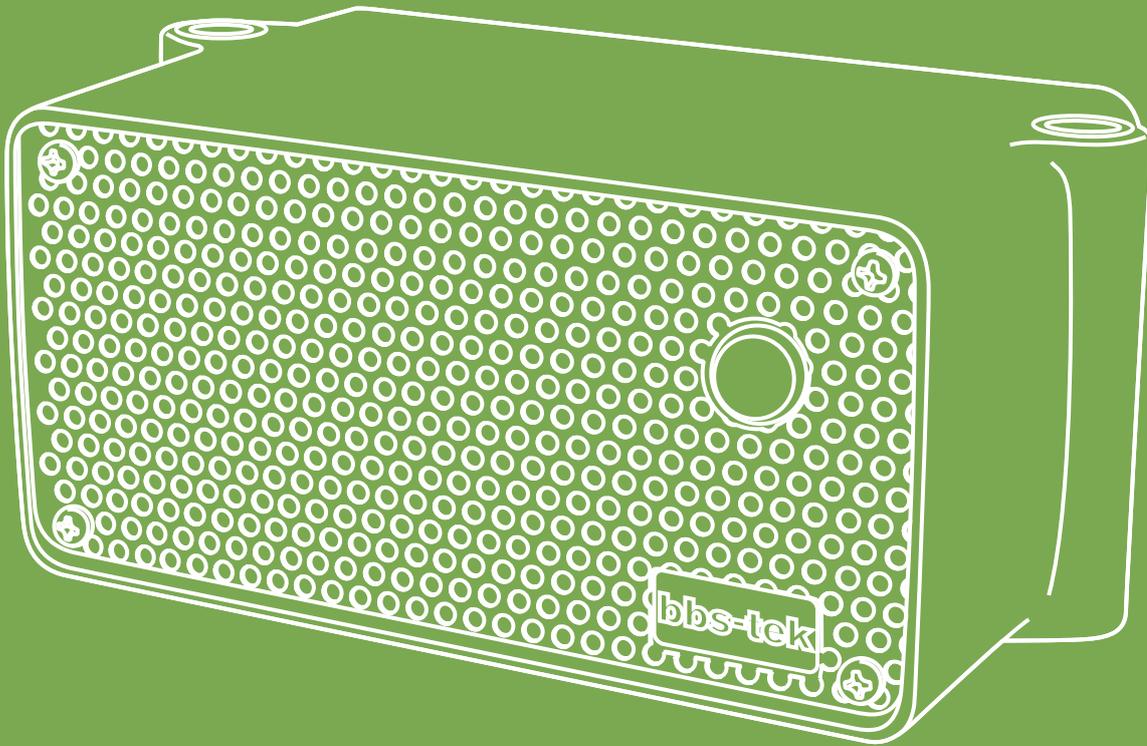
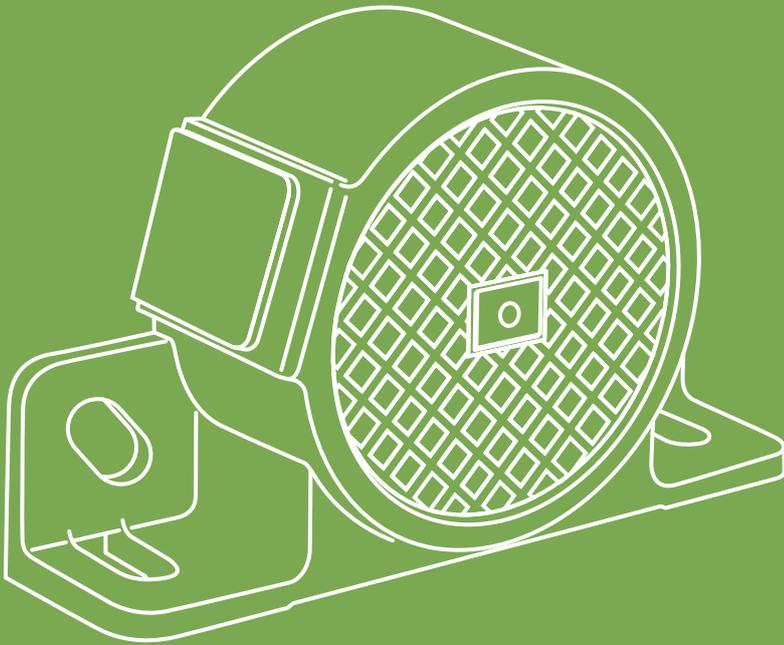


**Vehicle  
Safety  
Solutions**



**bbs-tek**<sup>®</sup>

**White Sound**<sup>®</sup>

**Warning Alarms**



# No need for alarm?

One quarter of all workplace deaths are caused by reversing vehicles according to the Health and Safety Executive (HSE). Many others result in injury and costly damage to vehicles, equipment and buildings. Despite this many operators still fail to fit simple and yet relatively inexpensive reversing alarms. With the advent of the Corporate Manslaughter Act, there has never been a greater legal necessity to carry out effective risk assessments of reversing processes.

Reversing 'beep beep' alarms were first introduced to Europe in the 1970s. They provided a vital step forward in safety, yet over time they have been shown to have a number of inherent problems; specifically concerning their environmental impact, but also in terms of safety – the exact reason they were introduced in the first place.

Advances in technology mean there is now a much better alternative.

***Brigade Electronics has made a dramatic decision to phase out beeping tonal alarms for a safer alternative that does not cause a noise nuisance.***

## bbs-tek® White Sound® Warning Alarms

bbs-tek® White Sound® alarms are a revolutionary new generation of warning alarm. They are the safest reversing alarms in the world and do not cause a noise nuisance. Already fitted across a range of industries from mobile plant machinery to airport luggage buggies, bbs-tek® is fast becoming the reversing alarm of choice. In fact, in New York City it is the only alarm permitted on construction vehicles. Brigade's vision is to ensure that every commercial vehicle is fitted with a white sound alarm to reduce reversing fatalities.

### Why choose bbs-tek® over tonal alarms?

	bbs-tek® White Sound® alarms	Tonal 'beep beep' alarms
<b>Safety</b>		
<b>Effective danger warning</b>	Yes	Not always
<b>Alarm sound quickly located</b>	Yes – directional sound	Unreliable – confusing
<b>Heard only where it matters</b>	Yes – only in hazard zone	No – an area at least 30 times greater than hazard zone
<b>Effect on workers</b>	Treat warning with respect	More likely to become desensitised to sound or even disable alarm, increasing risk
<b>Audible - heard by those wearing ear defenders or with a hearing impairment</b>	Likely	Less likely
<b>Environmental</b>		
<b>Eliminates noise complaints</b>	Yes	No – sound too strident and piercing
<b>Approved by the Noise Abatement Society</b>	Yes	No
<b>Certified by NAS/PIEK for night-time delivery</b>	Yes – certain models	No
<b>Health</b>		
<b>Risk of hearing damage and stress</b>	Lower	Greater



# On-road bbs-tek®

Commercial vehicles working and delivering in tight urban areas need to make regular reversing manoeuvres. In local neighbourhoods and busy town centres they must safely warn pedestrians, whilst ensuring they do not cause a noise nuisance to local residents and businesses.

## Quieter, yet safer

The safety benefits of white sound are the same whether off- or on-road. However, in urban areas, the environmental impact becomes much more important.

White sound meets the challenge by dissipating quickly outside the hazard zone, eliminating noise complaints. Furthermore, with its wide frequency range, white sound alarms can even operate 5-decibels quieter than a tonal alarm, yet still provide the same alerting effect.

*Beeping tonal alarms can be heard up to thirty times the distance of the hazard zone, causing irritation, noise complaints and stress.*

## Adjusting to the ambient

In environments with varying ambient noise levels a fixed sound level alarm may be either too loud or too quiet.

As the ultimate in warning alarms, **SMART bbs®** models solve this problem. They continuously react to the surrounding noise level and self-adjust their warning sound to maintain it in the region of just 5dB louder. This ensures the alarm is loud enough to act as a warning, but not so loud that it startles workers or disturbs local residents.



## Eliminating noise complaints

Asda opened a new supermarket near Skelmersdale in the UK. Part of the planning permission stipulated that any sound produced by reversing alarms should be inaudible to nearby residential properties, but initially there were complaints from local residents about tonal beepers. West Lancashire Borough Council confirmed that after Asda switched their fleet to white sound alarms the complaints stopped immediately.



### Smart bbs® Self adjusting sound level

Continually react to surrounding noise levels, self-adjusting their warning sound to 5-10dB louder.

Sound level options:  
77-97dB\*



### Medium duty fixed sound level

Ideal for commercial road going vehicles and environments with mid level ambient noise.

Sound level options:  
92dB, 87dB, 82dB\*



### Special applications fixed sound level

Petrol tanker (ADR):  
92dB



**All bbs-tek® White Sound® alarms come with a lifetime warranty**

\* Certified by PIEK for night-time delivery

## Environmental Benefits

The environmental benefits of white sound alarms have resulted in them being awarded the Quiet Mark and endorsed by the Noise Abatement Society, with certain models certified by PIEK, the Dutch authority set up to regulate quiet night-time deliveries in Europe. By fitting white sound alarms, companies can now benefit from cost and time savings by operating at night on quiet roads, without compromising on safety.

*Beeping tonal alarms are too strident to be used at night, whilst working without an alarm puts lives at risk.*



# Off-road bbs-tek®

Off-road working environments are commonly dominated by large mobile plant machinery, high noise levels and difficult terrains, making life extremely dangerous for workers. To improve safety, site operators must ensure the best possible warning is given to workers when machinery is reversing.

## Heard only where it matters

White sound dissipates quickly meaning the alarm can only be heard in the hazard zone. It also creates a "ssh ssh" sound which is gentler on the ear. The combined effect ensures the warning is treated with respect and prevents workers from becoming desensitised to the alarm sound, tuning it out. It also reduces the likelihood of sabotage from workers disabling alarms.

*Beeping tonal alarms can be heard up to thirty times the distance of the hazard zone causing workers to 'switch off' due to over-familiarity - putting them gravely at risk.*



## Instant locatability

White sound reversing alarms use broadband frequencies. These give greater directional information to the ear allowing the listener to instantly locate where the sound is coming from, and time to take evasive action.

*Tonal alarms in contrast can cause a head-spinning effect, confusion and disorientation. Vital seconds can be lost resulting in fatal consequences.*



## An end to confusion

*A worker on a road construction site in the Middle East was seriously injured by a road roller. He heard an alarm and saw a truck reversing. The worker was then hit by the roller from behind. The truck did not have an alarm, the roller did – a tonal alarm.*

*Following locatability trials, the company installed white sound alarms to all their road rollers worldwide.*

## Audible to all

Hearing protection devices (HPDs) protect workers from hearing damage, yet it is vital they can hear reversing vehicles to avoid fatality. HPDs mask the effect of some frequencies more than others. With a wide range of frequencies white sound alarms are much more likely to be heard. In the same way, those with hearing impairments stand a better chance of hearing white sound.

*By contrast the sound of a narrowband, tonal alarm could easily be masked, dramatically increasing the chance of collision.*



## Stress free

British Airports Authority (BAA)

*A health study by BAA involving noise exposure monitoring resulted in some very high noise readings. Originally thought to be due to faulty meters, a more detailed study identified that the tonal alarms on the passenger terminal electric buggies were being reflected so intensely they created a health problem.*

*Following further studies and a safety review BAA now specifies white sound alarms.*

### Smart bbs® Self adjusting sound level

Continually react to surrounding noise levels, self-adjusting their warning sound to 5-10dB louder.

Sound level options:  
87-107dB, 77-97dB,



### Heavy duty fixed sound level

For mine, quarry and construction machines or environments with high ambient noise.

Sound level options:  
102dB, 107dB,



### Medium duty fixed sound level

Ideal for smaller off road vehicles and environments with mid level ambient noise.

Sound level options:  
92dB, 97dB



### Special applications

#### Fixed sound level

Electric forklift (36-80Vdc):  
97dB, 92dB.

#### Self adjusting sound level

Electric forklift (36-80Vdc):  
77-97dB Smart



**All bbs-tek® White Sound® alarms come with a lifetime warranty**

To order or for more information on  
Brigade's vehicle safety solutions;

 **brigade-electronics.com**

 **+44 (0)1322 420300**

or visit your local stockist

**Awards:**

- NAS John Connell Award for Innovation 2003
- Society of Automotive Engineers Noise Management Innovations Award 2003

**Recognition:**

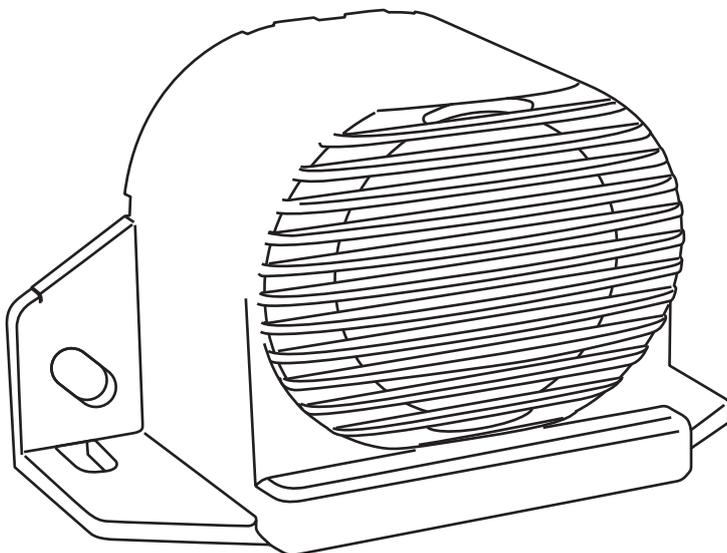
bbs-tek white sound alarms are specified worldwide by major supermarket chains; mining, quarry & construction conglomerates; distribution, bus & waste operators; and government and regulatory bodies.

**For more information:**

A white paper with detailed technical information on the benefits of white sound is also available – please enquire or visit [www.brigade-electronics.com/product-focus/alarms](http://www.brigade-electronics.com/product-focus/alarms)

Brigade's extensive portfolio of machine safety systems includes:

- **Camera monitor systems**
- **'White sound' reversing and warning alarms**
- **Pulsed radar obstacle detection systems**
- **Mobile digital recording**
- **Ultrasonic obstacle detection systems**



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