

The tangible benefits of using white noise alarms



A broadband alarm on a large, industrial vehicle

# Diminishing the din

By Karly Winfield

**B**eep, Beep, Beep, Beep! Everyone is aware of the constant annoying sound of tonal back-up alarms.

One concern with conventional reversing alarms is that their tonal sound travels over long distances and creates noise for surrounding communities and neighbouring residents. The other concern is that workers can become acclimatized to the beeping sound, and often cannot locate from which direction, or vehicle, the sound is coming from.

Broadband or white noise alarms operate at a much lower frequency, which can be heard in the danger area but not by the neighbours. The 'Shh, Shh, Shh' sound is instantly locatable,

ensuring workers can identify where the reversing vehicle is.

As well, the alarm is equipped with self-adjusting sound levels that allow for automated volume control when there are reduced ambient noise levels. In the evening, when there is less background noise, the alarm volume is reduced by up to 20 decibels. From the neighbours' perspective, they don't hear the broadband alarms as the sound dissipates quickly and does not carry over distance like a conventional tonal alarm.

A study completed by the Institut de recherche Robert-Sauvé en santé et en sécurité du travail (IRSST) compared new broadband alarm technology with

conventional alarms to determine their efficacy in relation to worker safety. It involved two sets of trials: a field trial and a laboratory trial. In the field trial, the sound generated by the alarms behind vehicles was measured in workplace conditions, to determine the direction and distance that the sound travelled. In the second, psychoacoustic tests were performed on a human subject in a lab.

The completed tests related to alarm perception: detection thresholds, equal loudness, perceived urgency and sound localization. The broadband alarm signals were deemed compliant with the Society of Automotive Engineers (SAE) J994 standard, the most common standard used to certify alarms installed on heavy vehicles.



Because the sound dissipates quickly, the broadband alarm is heard only within the danger area

**IMPLEMENTATION**

Broadband alarms have been implemented at the Lafarge operations in Caledon for many years. They have effectively put an end to complaints about reversing alarms, while making working conditions safer for workers. Many other local aggregate operations have implemented the white noise alarms for similar reasons. Although these alarms carry a higher initial cost, they come with a lifetime warranty. Reduced maintenance associated with repairs or replacement, and the satisfaction of knowing that it is the last backup alarm that will be required for a specific piece of equipment are simply two more reasons to consider implementing these alarms.


Broadband or white noise alarms are fully approved for both surface and underground mining operations under all current occupational health and safety regulations. In certain U.S. cities, they are the only reversing alarms allowed on construction projects. In Toronto, the TTC has used them exclusively on the subway expansion project, and on construction activity that is in close proximity to residential areas.

In conclusion, broadband or white noise reversing alarms provide an audible, locatable alert to your personnel of the presence of heavy equipment and vehicles that are equipped with broadband

warning devices. The alarms can work in partnership with camera systems and proximity detection systems to allow both the operator and the pedestrian to detect, alert and react before accidents occur. The elimination of local noise pollution is simply a very nice bonus, on an extremely reliable safety system. ●

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