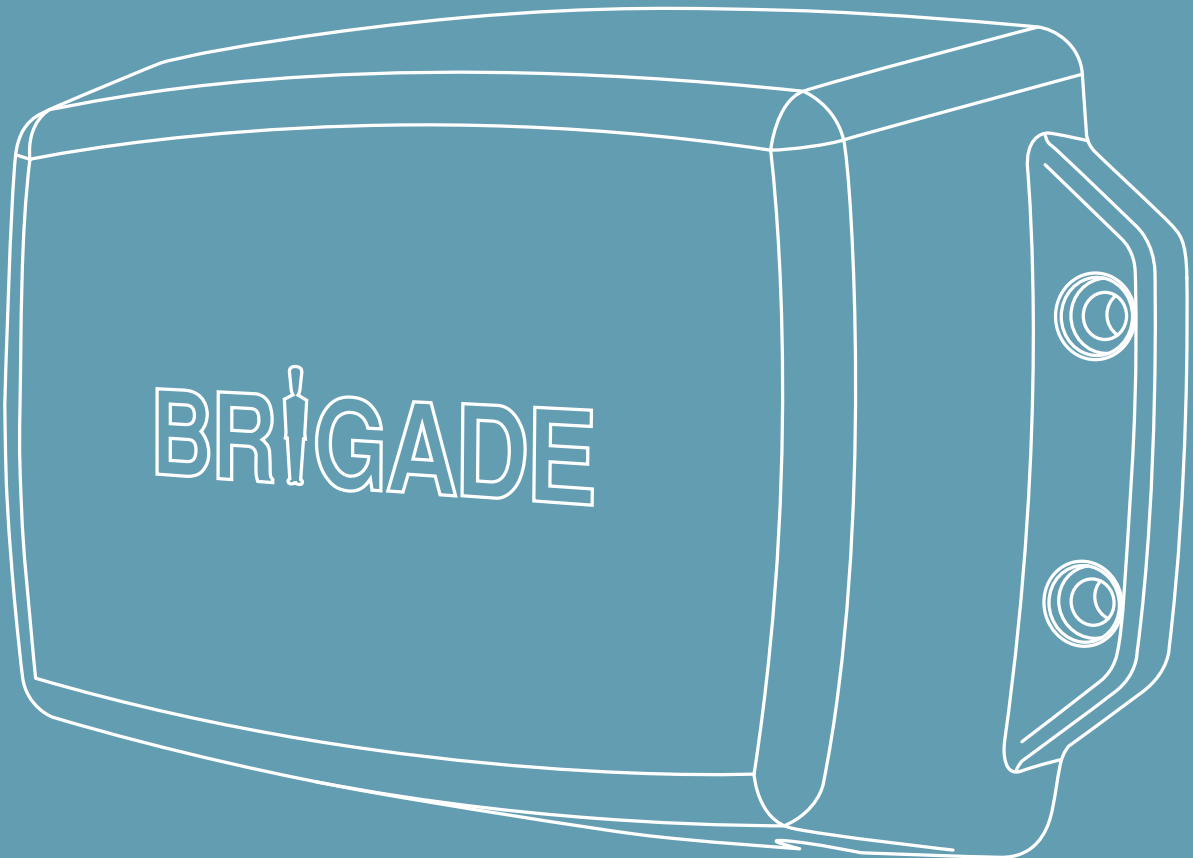
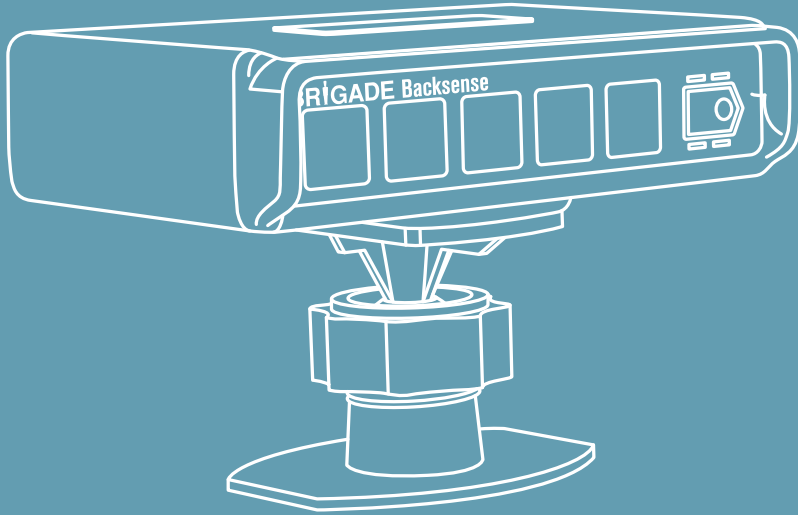


NEW



**Vehicle
Safety
Solutions**



**Backsense™
Radar Sensors**



Large vehicles, difficult conditions, greater danger!



Industries such as mining, quarrying, agriculture, construction and waste all use huge machines and plant equipment, which by their very nature pose a danger if they are not managed safely. Blind spots tend to be much larger on these vehicles and include not only the rear and nearside but also the front, especially with elevated driver positions. Terrains are harsher, vehicles are exposed to the elements more aggressively whilst thick dust and darkness decrease visibility further.

The ISO 5006 standard for earthmoving equipment addresses the problem of blind spots around a vehicle and states that the operator must be able to "see around the machine to enable proper, effective and safe operation." Camera monitor systems provide this to some extent, but in difficult environmental conditions a range of complementary devices are vital to give visual and audible operator warnings.

The UK Health & Safety Executive (HSE) warned about the dangers of poorly managed transport in the workplace after a coal mining company was fined following the death of two men crushed by a 100 tonne capacity dump truck. The dump truck driver could not see their vehicle because it was in a blind spot.

"Earth-moving vehicles have poor visual fields due to their large size. It is crucial that additional steps are taken to ensure that drivers of these machines are aware of other smaller vehicles around them."

Norrie Buchanan, HSE Inspector

Backsense™ radar detection systems



Brigade's Backsense radar sensor systems are designed to detect people and objects in blind spots, significantly reducing accidents. They detect stationary and moving objects, providing the driver with in-cab visual and audible warnings - alerting the operator whose attention can not be focused on all danger areas. Backsense works effectively in harsh environments and in poor visibility including darkness, smoke and fog.



The Backsense range



Backsense Features:

- Close detection zone combined with targeted beam pattern
- Controlled beam pattern to minimise false warnings
- Excellent close-in detection
- Frequency modulated continuous wave radar technology
- Can trigger other vehicle safety devices such as camera monitor systems or reversing alarms
- Eliminates possibility of driver interference. The audible warning buzzer cannot be switched off, providing fleet operators with peace of mind
- Clear, easy-to-read display and wide volume range of audible alert
- Suitable for both on- and off-road applications
- Extremely rugged design for severe weather conditions and all terrains
- Effective through non-metallic objects - can fit behind plastic or glass fibre body work
- Self-diagnostics alert operator to system errors
- Choice of detection ranges
- 5 stage audible and visual display
- Comprehensive certification

Every Backsense has an in-cab audio alert and LED display to alert the operator to hazards and their proximity.



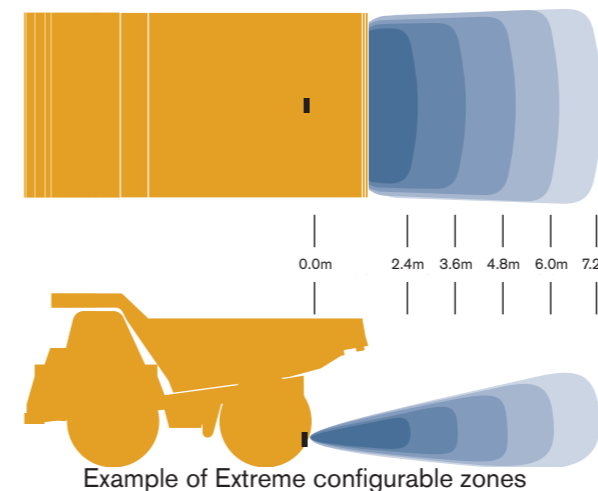
In-cab display and Backsense™ radar



Programmable Backsense™

BS-8000

- Configurable:
 - Detection area
 - 3m (10ft) – 30m (98.5ft) length
 - 2m (6.5ft) – 10m (33ft) width
 - 5 detection zones
 - Blind zones – system ignores objects in specified zones, e.g. vehicle bodywork
 - Trigger output length – controls when other equipment, e.g. a warning alarm, is activated
 - Buzzer starting zone – audible alert can be set to activate after the visual signal
- Simple-to-use PC-based configuration software – no bespoke programming equipment required



Fixed Backsense™

- Fixed detection length and width divided into 5 equal detection zones
- Buzzer and trigger output activate in all zones on detection

BS-7030

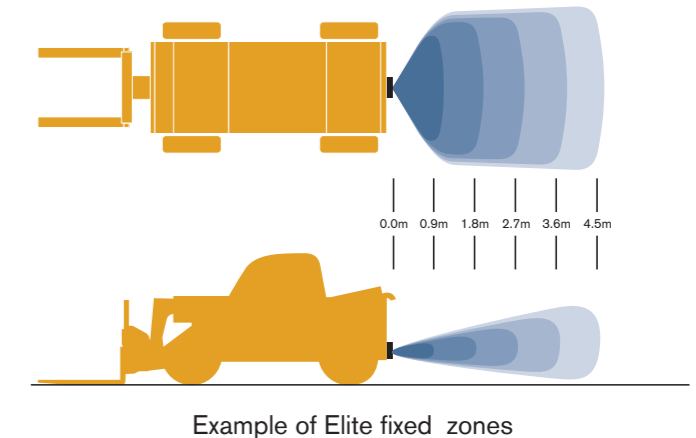
- 3m (10ft) length x 2.5m (8ft) width detection area
- 5 x 0.6m (2ft) detection zones

BS-7045

- 4.5m (15ft) length x 3.5m (11.5ft) width detection area
- 5 x 0.9m (3ft) detection zones

BS-7060

- 6m (19.5ft) length x 4.5m (15ft) width detection area
- 5 x 1.2m (4ft) detection zones



Diagrams are for illustration purposes only. Detection is affected by an object's physical properties and location.



Benefits of Backsense™

Safety

- ✓ Helps prevent collisions
- ✓ Reduces accidents and fatalities, injury and sickness time
- ✓ Meets Health and Safety requirements

Efficiency

- ✓ Saves collision damage cost and downtime
- ✓ Saves on third party claims

Compatibility

- ✓ Can be set up to trigger reversing alarms, safety lights, camera systems and digital recorders

Ruggedness

- ✓ Unaffected by moisture, dust, vibration, heat, cold, UV, snow, ice, high wind, water and mud



Backsense for Mining, Quarry and Construction

Backsense is the answer where machine size and difficult environmental conditions, such as dust clouds or darkness, make manoeuvring particularly dangerous. It reduces the risk of large machines reversing into smaller machines or overturning following collision with a stock pile.

It is equally beneficial for forward movement, with machine design often creating large blind spots - for instance many dumper trucks cannot see objects or people on the ground as far as 20 metres in front of them. It is possible to calibrate out bodywork and vehicle protrusions in the detection area to prevent false alarms. Backsense also reduces risk for site workers wearing ear defenders who may be unable to hear reversing alarms.



Backsense for lighter duty machines

Suitable for light machines with extensive or varying blind spots, such as telescopic handlers; and machines operating in confined spaces, such as small wheeled low-loading shovels.



Backsense for the Refuse Industry

Narrow-beam options are especially useful when manoeuvring close to parked cars, and bin-lift mechanism detection can be programmed out to prevent false alerts.



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

 **brigade-electronics.com**

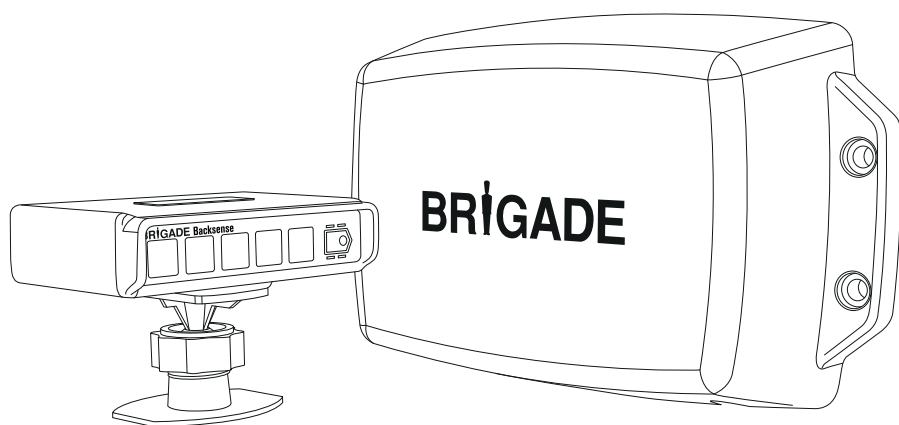
 **+44 (0)1322 420300**

or visit your local stockist

Brigade's extensive portfolio of machine safety systems includes:

- **Backeye®360 Camera monitor systems**
- **Camera monitor systems**
- **'White sound' reversing and warning alarms**
- **Radar obstacle detection systems**
- **Mobile digital recording**
- **Ultrasonic obstacle detection systems**

Brigade products are designed to improve safety in and around commercial vehicles and mobile plant. Safety systems do not replace driver best practice. Please take care when manoeuvring.



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