



Brigade

You're safer with us

Safety Systems

**Airport
Vehicles**

2024



Brigade

Safety in the Airport Industry.

Airports are extremely busy places with a wide range of operating vehicles that are constantly on the move. Multiple companies within an airport employ thousands of people and thousands more people travel through each day. Keeping everyone safe whilst working to a tight schedule is a complex task yet is of paramount importance.

Aprons are potentially the most perilous of all airport environments: they are congested, noisy, and packed with a diverse fleet of vehicles, all traveling at a variety of speeds and directions.

The Flight Safety Foundation estimates that 27,000 ramp accidents and incidents – one per 1,000 departures – occur worldwide every year, and about 243,000 people are injured. The injury rate is 9 per 1,000 departures. Analyses of the data indicates that contact between airplanes and ground-service equipment – baggage loaders, airbridges, catering vehicles, fuel trucks, etc. – accounts for more than 80 percent of ramp accidents/incidents.



27,000 Ramp accidents worldwide per year



Ramp accidents occur every **1 in 1000** departures



243,000 People are injured worldwide every year



Ground vehicles account for **80% of accidents**



Ramp accidents cost airlines **10 billion** a year



Poor situational **awareness** is a main factor in accidents

Brigade

How Brigade can help you

By working in partnership to understand your safety concerns, Brigade's team of engineers strive to bring innovative answers to the marketplace. By making a small investment in Brigade's safety solutions you can achieve clearly defined and measurable benefits as shown below.

- All round vehicle visibility for safer, more efficient operation
- Reduced accidents
- Reduced insurance premiums
- Reduced vehicle downtime due to accidents
- Meet health and safety requirements
- Peace of mind for management and workers
- Strengthen your company's reputation

Why Brigade?

- Pioneers in Vehicle Safety since 1976
- Brigade is a partner with OEMs specialising in Ground Support Equipment
- Brigade equipment is in use with major airports inc Europe, North America, Asia & Middle East
- Rigorous and comprehensive testing ensure Brigade products are of a high standard
- 2, 3, 5 and lifetime warranties on Brigade products

- 1 Rear & Side Camera



- 2 In-cab Monitor



- 3 Backeye®360 360° Camera



- 4 Ultrasonic Detection Sensor



- 5 Ultrasonic Detection Buzzer



- 6 Reversing Alarm



- 7 Mobile Digital Recorder



Camera Monitor Systems

Camera systems are a vast improvement on the many mirrors needed to view vehicle blind spots. Mirrors themselves create further blind spots and 'information overload' for drivers who don't know where to look first, with knocked or broken mirrors creating further visibility issues.

Backeye® monitors allow multiple camera images to be viewed on a single monitor with dedicated views triggered by, for example, reverse gear. Cameras provide a wider angle of view than mirrors and are less likely to be damaged, whilst built-in LED's offer superior visibility in low light conditions.

Vehicle CCTV systems are used in a wide range of on- and off-road applications to meet a host of health and safety and legislative requirements. They can eliminate blind spots to prevent costly vehicle damage and, more importantly, save lives.



Eliminate Blind Spots

Calibrated cameras capture all of the all areas including the blind spots.



Real-time Views

Live pictures shown on the monitor without time lag.



Wide Angle Views

Provides a wider angle of view than mirrors and less likely to be damaged.



Recordable

Record individual camera feeds in high definition to a mobile recorder.

A



BE-800C Camera

- Wide Dynamic Range for improved detail in shadows and highlights
- Infrared LEDs for ultra low light performance
- Day and night sensor
- Heated camera lens

B



BE-970WFM 7" Quad Screen Monitor

- IP69K - Waterproof and dustproof
- Suitable for vehicles with exposed cabs
- 'Button-lock' anti-tamper feature
- On screen distance and vertical line markers



Backeye® 360

An intelligent camera monitor system designed to assist low-speed manoeuvring by providing the driver with a complete surround view of the vehicle in real-time.

Backeye®360 technology works with four ultra-wide-angle cameras each covering one full side of the vehicle with a viewing angle of over 180°. High-mounted on the front, rear, and sides, the calibrated cameras capture all of the surrounding areas including the blind spots of the vehicle or machine.

The four live images are simultaneously sent to an electronic control unit (ECU) where they are instantly processed, combined, blended, and stitched. The distortion from the wide-angle camera lens is also corrected before delivering a clear, single, smooth, real-time image onto the driver's monitor.



Eliminate Blind Spots

Calibrated cameras capture all of the all areas including the blind spots.



Real-time Views

Live pictures shown on the monitor without time lag.



Custom Views

Monitor views can be tailored to the work environment of the vehicle.



Configurable Setup

Backeye 360 will work on most vehicles, large or small.

A



BN360-300 AHD 360° Camera System

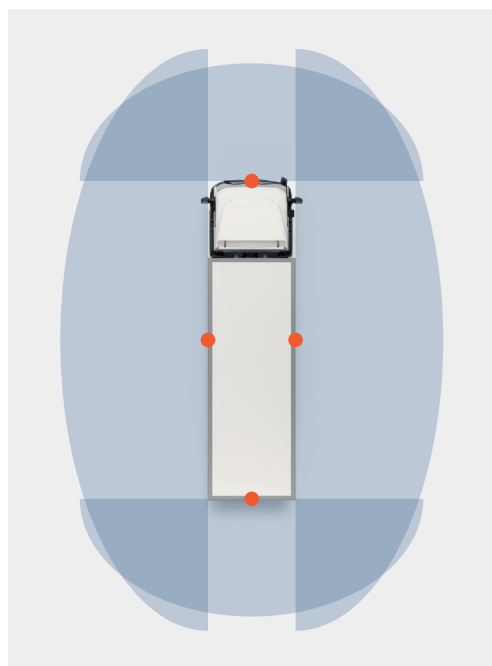
- 4 camera system
- 720p HD 360° bird's eye image
- 15 different monitor view modes
- Compatible with Brigade's mobile recording systems

B



VBV-7104HFM 10.4" Quad Screen Monitor

- High definition image
- Configurable split screen options
- 'Button-lock' anti-tamper feature
- On screen distance and vertical line markers



Ultrasonic Detection Systems

Brigade's ultrasonic proximity sensors minimise both vehicle damage and collisions with objects and pedestrians.

Perfect for airport vehicles operating or manoeuvring in busy environments. The detection system alerts the driver of obstacles close to the vehicle, whether moving or stationary. An audible and/or visual in-cab warning informs of distance whilst an optional external speaking alarm can be added to alert pedestrians that the vehicle is turning.



Alerts Driver Of Hazards

Alerts the driver to an object within the detection area.



Driver Aid

Gives greater protection to drivers and airport workers around them.



Minimises Damages

Minimises damage to vehicle, property and other objects.



Customisable Setup

Variety of setups to tailor to all types of vehicles.

A



SS-200W Sidescan Flex Ultrasonic Detection System

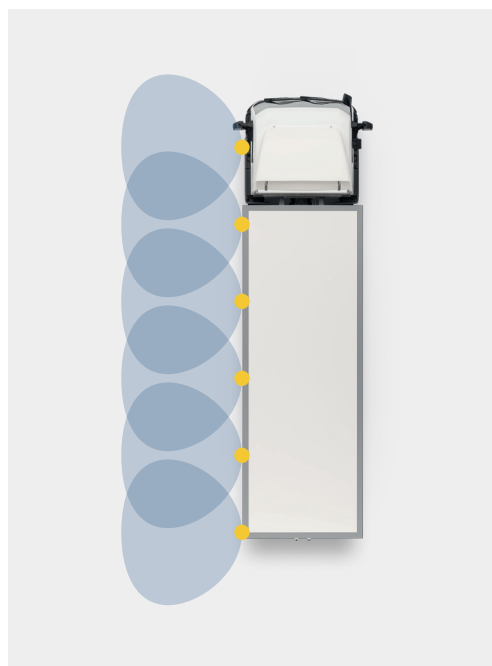
- 4 sensor detection system
- Obstacles detected in under 200 milliseconds
- Multiple mounting options included
- Also available for front, corner and rear installations

B



Ultrasonic Buzzer

- Included in SS-200W ultrasonic detection system kit
- Audible distance warning when objects are detected
- Adjustable volume control



Reversing and Warning Alarms

bbs-tek® multi-frequency back up alarms use a wide range of White Sound® frequencies. This enables the listener to instantly locate where and what direction the sound is coming from. The broadband sound also gives workers wearing hearing protection devices in loud environments such as airports, a better chance of hearing the alarm.



Danger Zone

Sound quickly subsides outside of danger zone eliminating noise nuisance.



Five Decibels Quieter

Smart Alarms operate effectively 5dB lower than conventional alarms.



Lifetime Guarantee

All bbs-tek White Sound alarms are guaranteed for life.

A bbs-tek® White Sound Reversing Alarm



“ LDV Heathrow

There's no doubt that the Quiet Vehicle Sounder works. We've tried over the years to find an appropriate solution that not only does the job but also meets proposed regulations and nothing can beat the QVS. We'll be installing it on every electric vehicle, there's no reason it should not be fitted.





bbs-tek® White Sound Reversing Alarms

- A range of alarms from 77 to 107 decibels for all environments
- Instantly locatable sound
- Eliminates noise nuisance
- bbs-82 approved for night time use by Noise Abatement Society
- Lifetime warranty



SMART bbs-tek® Reversing Alarms

- Continually adjusts to 5-10 decibels above ambient noise level
- Ideal for environments with varying levels of noise
- bbs technology
- Lifetime warranty



Backchat® Speaking Alarms

- Clear spoken messages
- Warnings for reversing, turning and handbrake alarms
- Bespoke messages
- Night-time cut-out



Quiet Vehicle Sounder

- Designed for electric and hybrid-electric vehicles of all types
- Warns vulnerable road users that a quiet vehicle is approaching
- Front speaker system incorporating bbs-tek technology
- Pitch and volume increase with vehicle speed
- Sound cuts out at 20mph



Mobile Recording

Incidents involving vehicles are time-consuming issues to resolve. By having recorded footage where there are conflicting reports of actual events or by being able to prove a staged accident, companies can make major cost savings whilst, importantly, supporting their drivers who are often the subject of increased scrutiny after an incident.

Brigade's MDR-600 series MDRs are robust devices capable of recording video from up to 12 analogue AHD and 1080P IP cameras, along with other meta data such as location and speed. With 4G connectivity, live video or recordings can be accessed remotely while the vehicle is out on the road, along with its location.



Record Multiple Cameras

Records from up to twelve cameras simultaneously.



Location and Speed

Offers built-in GPS so that you can track a vehicle's speed and location.



G-Sensors

G-sensor provides impact data and accelerating and breaking.



AHD and Recordable

AHD Compatible with Backeye 360 Recordable.



4G Connectivity

View live video, recordings and other data while the vehicle is on the road.



MDR-641G-1-SSD Mobile Digital Recorder

- Recordings protected by non-visible watermark
- Can connect up to 4 analogue and 1 IP camera
- Compatible with Brigade's camera monitor systems
- 1 TB hard drive



MDR-644G-1-CMR Mobile Digital Recorder

- Records from up to 12 cameras simultaneously using external PON Switch
- Can connect up to 4 analogue and 4 IP cameras
- Mirror recording onto SD Card
- Built-in buzzer
- Anti-vibration mounting allows for installation at any angle





ELITE

HEAVY DUTY
VEHICLE SAFETY
SYSTEMS

Brigade's top of the range systems are ideal for vehicles and machines that require exceptional quality and consistent performance in the harshest conditions, including desert dust and wintry conditions. Rigorously tested to higher standards, the superior components and build quality are reflected in their 3 year, 5 year and lifetime warranties. Ideal for heavy duty applications.

BACKEYE® ELITE Range Monitors

Brigade's camera monitor systems enable drivers and operators to manoeuvre and drive safely. Vehicle mounted cameras can help the driver to see blind spots by delivering a live feed to the in-cab monitor.

- 7" Monitor & 4 camera inputs
- Screen viewing options including split, quad and picture-in-picture
- 5 Auto triggers

Bbs-tek® White Sound® Reversing Alarms

Vital safety devices needed to warn workers that a vehicle is manoeuvring. White sound alarms are the safest in the world due to their instantly locatable and directional sound.

- Multi-frequency broadband sound
- 102 decibel, 107 decibel or self-adjusting 87-107 decibel models
- Self-adjusting models continually adjust sound to above ambient
- Sound confined to danger area
- Eliminates noise nuisance

BACKEYE® ELITE Range Cameras

Brigade's camera monitor systems enable drivers and operators to manoeuvre and drive safely. Used on a wide range of on and off-road applications to meet a host of health and safety and legislative requirements.

The size of commercial vehicles and machines mean vehicle blind spots are a major factor in collisions across all industries. Operator positions, bodywork, absent rear windows and bulkheads create further restrictions and can greatly limit driver visibility, making collisions even more likely.

- Mirror/normal view
- Wide dynamic range for improved details in shadows and highlights
- 5 infrared LEDs for ultra-low light performance
- IP69K waterproof and dustproof

Backsense® Heavy-Duty Radar

Backsense® heavy-duty radar sensor systems detects people and stationary or moving objects in vehicle blind spots. Industries such as mining, quarrying, agriculture and construction use 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 harsh, vehicles are exposed to the elements more aggressively whilst thick dust and darkness decrease visibility further.



LSG Sky Chefs fits Brigade's safety solutions to its fleet of airport ground services vehicles.

Founded in 1945, LSG Sky Chefs, a subsidiary of Lufthansa, is a global provider of airline catering and in-flight services. The company provides services to more than 300 airlines worldwide, including meal preparation, packaging, in-flight equipment and supplies for airlines - such as crockery and cutlery - and delivery to airports.

LSG Sky Chefs has a global network of more than 200 facilities in over 50 countries. This includes operating vehicles to transport their products to airports and airlines, such as at Tallinn Airport in Estonia, where they have a fleet of Iveco Eurocargo trucks.

The aviation industry is renowned for its exemplary safety record and LSG Sky Chefs is no exception. Safety is a top priority for the company.

Operating ground vehicles at any airport presents numerous challenges. LSG Sky Chefs' drivers often need to navigate high traffic areas in very limited spaces alongside expensive machinery and aircraft.

LSG Sky Chefs' fleet managers recognised that ground support vehicles and equipment operated by other companies were frequently involved in incidents that damaged aircraft and machinery. Such damages cause enormous issues for airlines and airports, including grounded aircraft, expensive repairs, and costly delays.



Reducing the risk of expensive damages

To prevent collisions and minimise the hazards posed by busy airport environments, LSG Sky Chefs chose Brigade Electronics to deliver a range of safety solutions to enhance its vehicle safety.

Sky Chefs Representative, said: *"After consulting with the experts at Brigade, we fitted our full fleet of Iveco Eurocargo trucks with Brigade's Backeye®360 camera monitor system, ultrasonic obstacle detection and bbs-tek® White Sound® alarms.*

"This has resulted in numerous benefits for our drivers, including eliminating blind spots and providing assistance during low-speed manoeuvring - something they have to manage regularly. The installation of Brigade's Backeye®360 provides our drivers with a complete bird's-eye view in real-time of the vehicle and its surroundings."



Protecting drivers and ground workers

In addition to the benefits of Backeye®360, Brigade's ultrasonic obstacle detection system has improved visibility for LSG Sky Chefs' drivers.

Perfect for vehicles operating in confined spaces or manoeuvring at low speeds, the detection system alerts drivers of obstacles close to the vehicle, whether moving or stationary. An audible and/or visual in-cab warning display warns of distance, while Brigade's bbs-tek White Sound® warning alarms alert those outside the vehicle that it is turning.

Sky Chefs Representative, said: *"Brigade's products and solutions have provided peace of mind for our drivers and ensured that the potential for vehicle collisions and damage is minimised."*

Brigade

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