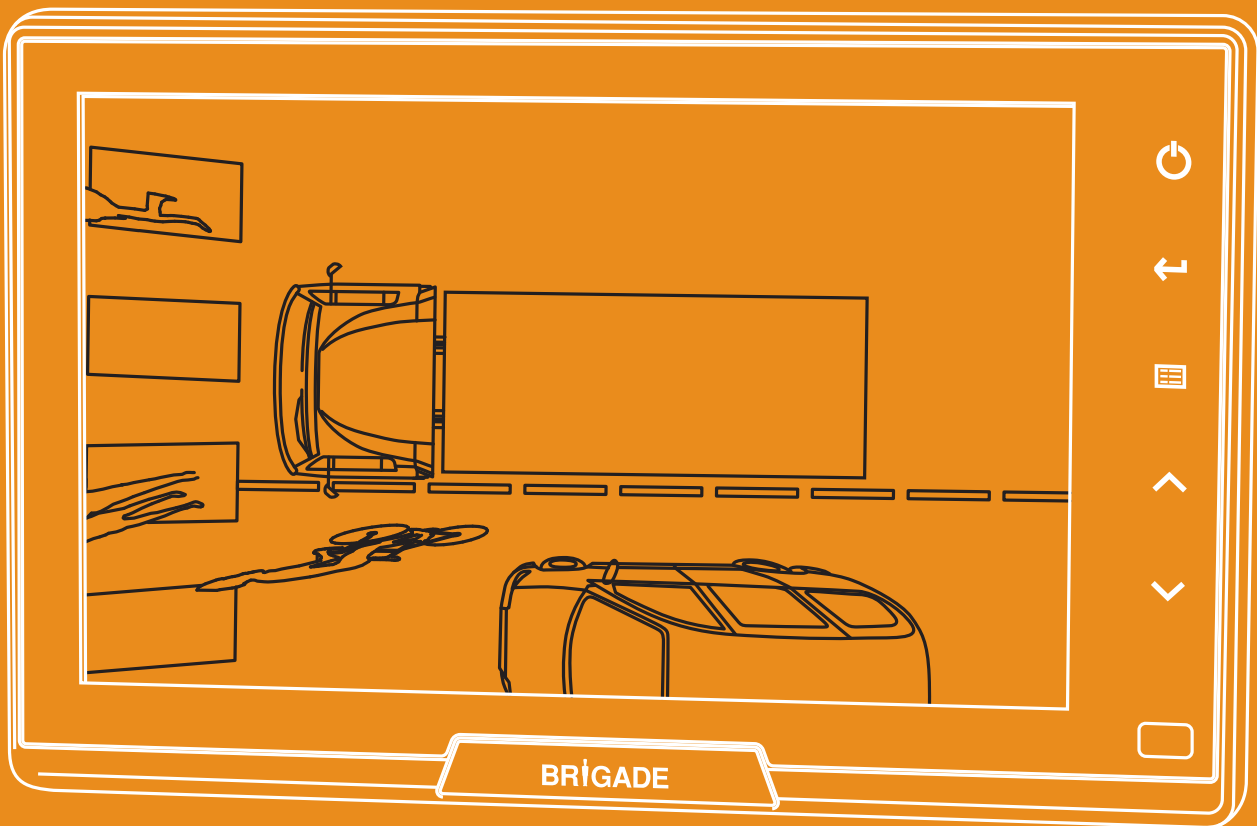
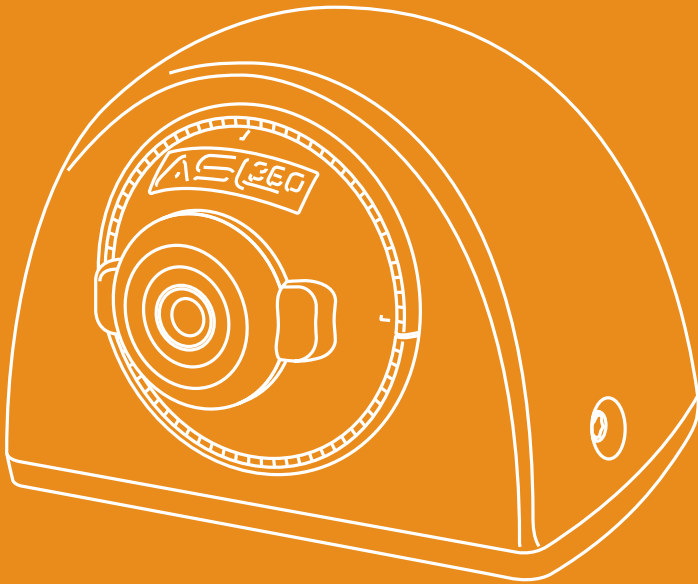


# Vehicle Safety Solutions



# Smarteye<sup>™</sup> 360° Camera Monitor System



# Smarteye™

## 360° Camera Monitor System

### Eliminating the Blind Spot

Brigade has solved the problem of hidden blind spots with the launch of Smarteye™, a camera monitor system that offers the ultimate view of a vehicle for the first time. Using brand new technology it takes vehicle safety to the next level.

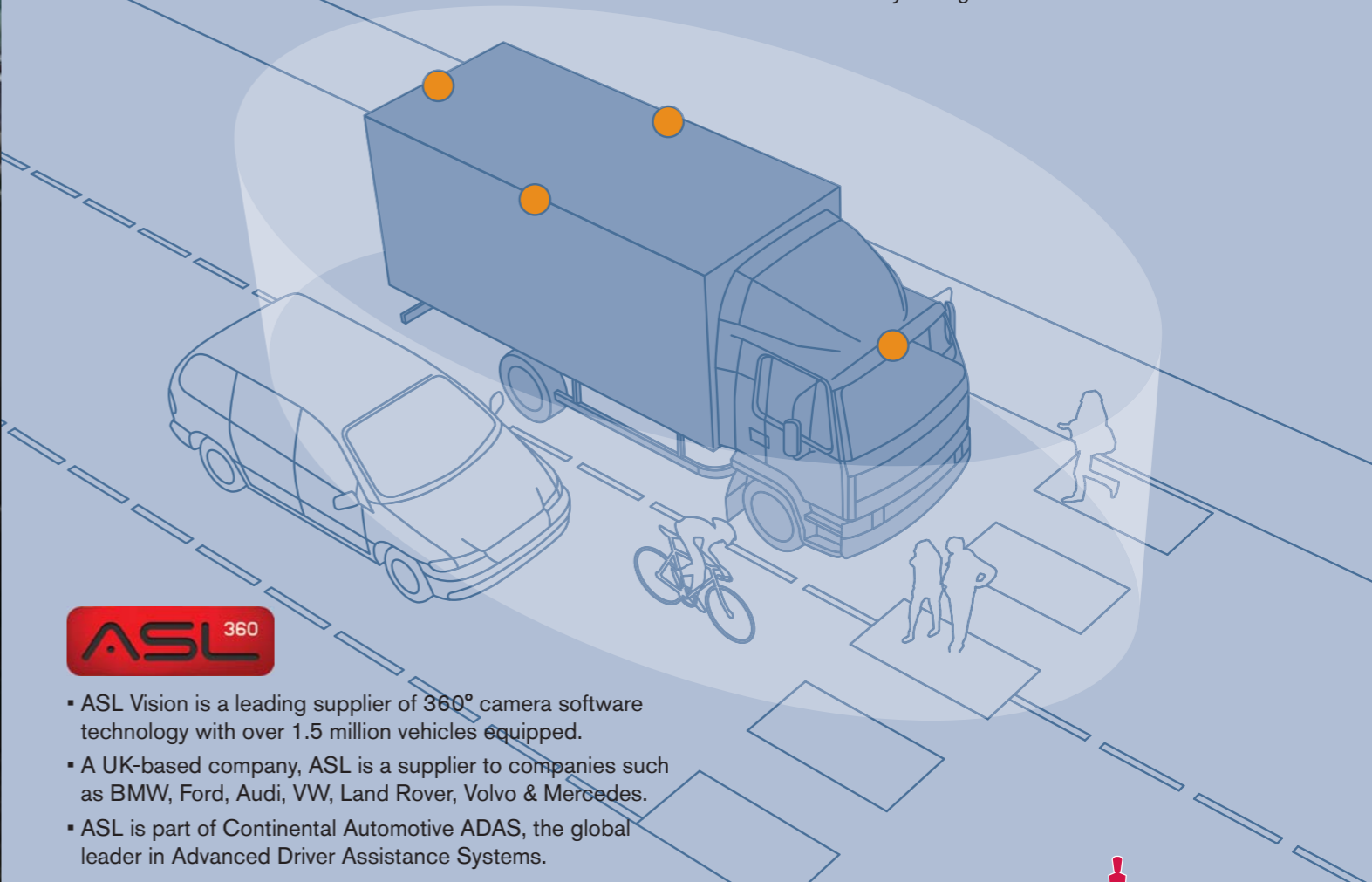
Smarteye™, powered by ASL360, is an intelligent camera monitor system designed to assist low speed manoeuvrability by providing the driver with a real-time surround view of the vehicle in a single image.

Ultra wide-angle cameras mounted on the front, sides and rear of the vehicle capture the surrounding areas of the vehicle including all blind spots. Simultaneous digital images from these cameras are then processed and 'video-stitched' resulting in a 360° bird's-eye view within a single image delivering a clear, real-time picture on the driver's monitor.

- Eliminates blind spots
- Comprehensive view of the surrounding areas in a single image
- Reduces collisions with people and objects



Actual Smarteye image



- ASL Vision is a leading supplier of 360° camera software technology with over 1.5 million vehicles equipped.
- A UK-based company, ASL is a supplier to companies such as BMW, Ford, Audi, VW, Land Rover, Volvo & Mercedes.
- ASL is part of Continental Automotive ADAS, the global leader in Advanced Driver Assistance Systems.

### The Blind Spot Hazard

All vehicles are affected by blind spots; areas that become hazards when a vehicle is in motion.

The substantial size of commercial vehicles and machines, operator positions, bodywork, bulkheads and the lack of rear windows all restrict a driver's view. This means that anyone or anything in the path of a manoeuvring vehicle is in danger of not being seen.

Additional mirrors and the installation of cameras help combat this problem, but even with this extra assistance, the driver may still not be totally aware of anything or anyone in the vehicle's path. After all, he can only be looking in one monitor or mirror at any given time.

In fact, even with the fitment of visibility aids, vehicle blind spots can still be a problem and remain a contributory factor in collisions in all industries.



## 4 cameras 1 image 0 blind spots



Smarteye™ provides the driver with a real-time, 360° bird's-eye view of the vehicle within a single image.

The system includes four ultra wide-angle cameras that each cover 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, smooth, real-time image onto the driver's monitor.

The Smarteye system allows for personalised calibration and each installation is unique. The blending and stitching of the camera views can be configured to meet the requirements of the user and the settings saved to upload to identical vehicles in a fleet.

Smarteye will work on virtually any rigid vehicle or machine, large or small. The distance of the viewing area can be set to suit the application. For example, a refuse vehicle may only need to see a distance of 3m, whereas a large dumper at a quarry may require a radius of 40m. This flexibility makes the system suitable for both on- and off-road applications.

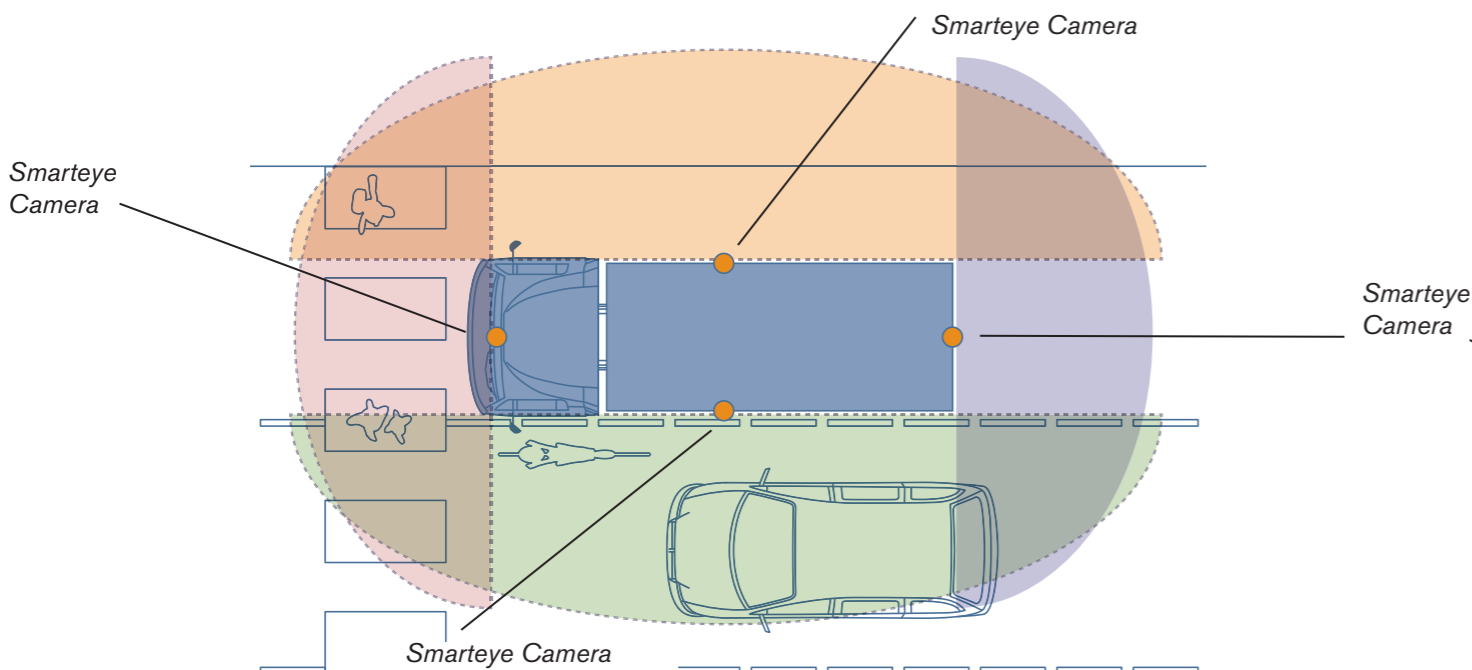
Benefits of the system extend beyond reducing collisions with people and objects. The comprehensive view of the surroundings aids the driver when manoeuvring at low speed and can minimise tyre damage, as the operator of larger machines can see and avoid objects lying on the ground.

Smarteye is compatible with Brigade MDR digital recorders, providing 360° footage that can be used in incidents of 'crash for cash', vandalism or false claims. Video evidence can help companies make major cost savings by refuting bogus claims, whilst importantly supporting their drivers.



### Smarteye™ Features and Benefits

- Four 187° camera lenses cover the entire vehicle perimeter and surroundings including all blind spots
- Real-time video output
- Smooth video. Up to 30 frames per second
- System automatically switches off an individual camera image in the unlikely event of a malfunction, guaranteeing no frozen frames
- Customisable triggers available for various views, e.g. selection of reverse gear highlights rear view image
- Automatic light balancing for an even image
- System supports configurable split-screen output
- Viewing area and distance configurable to suit vehicle type and application
- For large vehicles using wide diameter views, software reduces the 'over-stretch' at extreme outer edges so that distant people and objects are recognisable
- Optional vehicle outline on monitor showing overhanging position for cameras fitted underneath the bodywork
- Customisable on-screen vehicle icon and livery so the driver sees a recognisable vehicle footprint on the monitor
- Compatible with Brigade Mobile Digital Recorders
- Compatible with Brigade monitors



Actual Smarteye image

## Installation and calibration

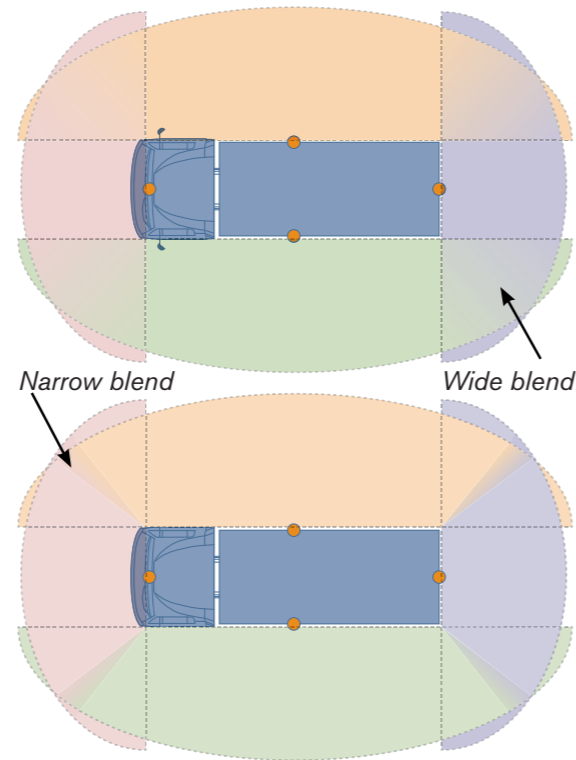
Installation and calibration can be carried out on-site by a trained engineer, meaning Smarteye can be fully operational within a single day. The system will only allow calibration to commence if set-up is executed correctly, ensuring accurate results and therefore the safest possible solution.

Any overlap of two camera views can be blended. The width of the blend can be programmed from zero (hard-edged stitching) to the entire overlap. The blended line can also be placed anywhere within the overlap to minimise the impact on critical viewing areas for the driver.

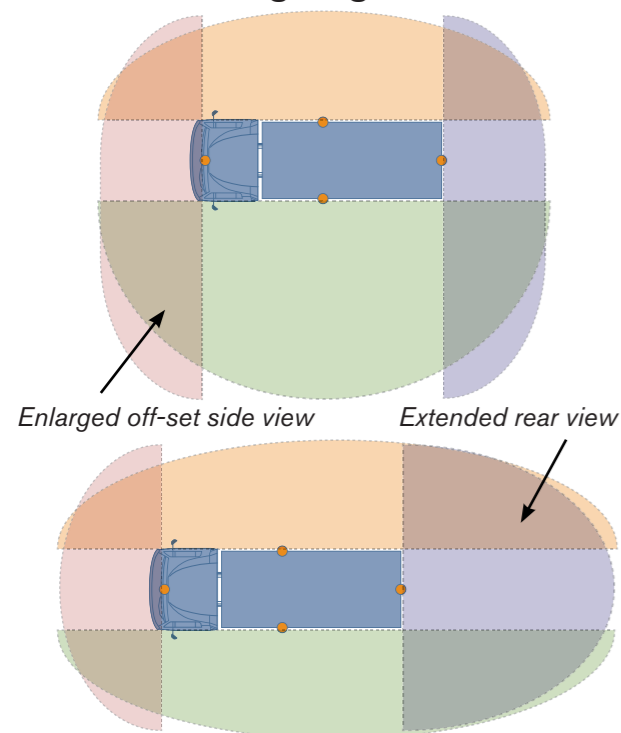
Smarteye software compensates for a camera fitted off-centre. The 187° camera viewing angle captures the entire face of a vehicle regardless of its position, so the image delivered to the driver's monitor can be calibrated to appear as though the camera is centrally mounted.

The system has up to four programmable in-built triggers. These can be activated to deliver a better focus on the relevant danger areas on the monitor when manoeuvring, e.g. selecting reverse gear will display an extended rear view on the monitor, or indicating can enlarge the side view. Alternatively, the system can be triggered to switch off above a certain speed or can activate other ancillary devices.

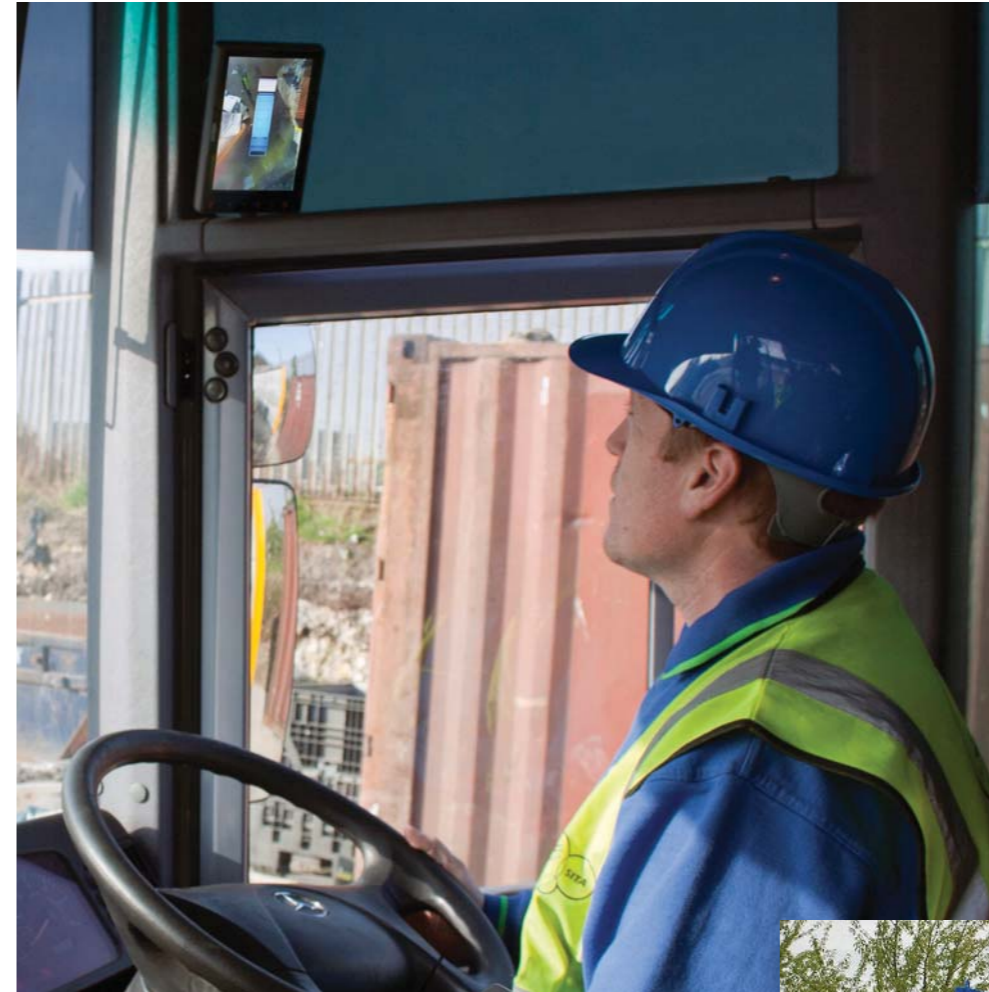
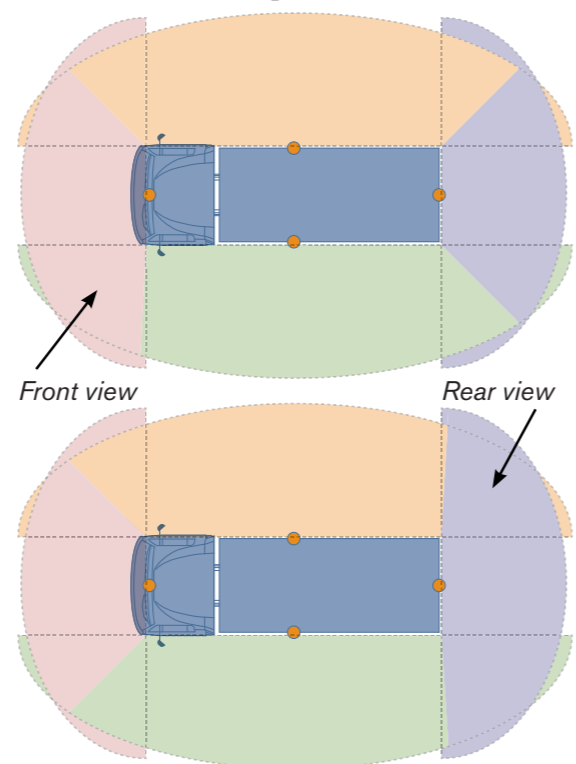
### Examples of customisable blend widths



### Examples of programmable image regions



### Examples of customisable blend positions



## No more rubbish views

SITA UK is a recycling and resource management company that delivers solutions to 12 million residents and 40,000 business customers in the UK. The company manages over seven million tonnes of waste every year through recycling, composting, energy-from-waste and landfill facilities.

Driving a refuse vehicle requires skill, concentration and good visibility around the vehicle.

SITA driver, Will Kissack, explains the problems with visibility and hazardous situations that refuse drivers face on their rounds.

"We are often driving down narrow residential streets with cars parked on both sides and congested traffic during the morning rush. Children are on their way to school and see a refuse vehicle as slow moving, so they think it is safe to walk out in front of it. Commuters are often on their mobile phones and looking down, not paying attention as they walk into the road. Some mornings the sun is very bright too and creates a dangerous glare."



SITA fitted Brigade's Smarteye™ powered by ASL. The sophisticated camera system provides the driver with a bird's-eye view of the vehicle for safe manoeuvring.

Will Kissack likes the system: "Smarteye gives you a better view around the vehicle than normal camera-monitors. You can see that bit extra and only need to look at one monitor which makes it easier. It doesn't replace mirrors but is an invaluable guide for manoeuvring."



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

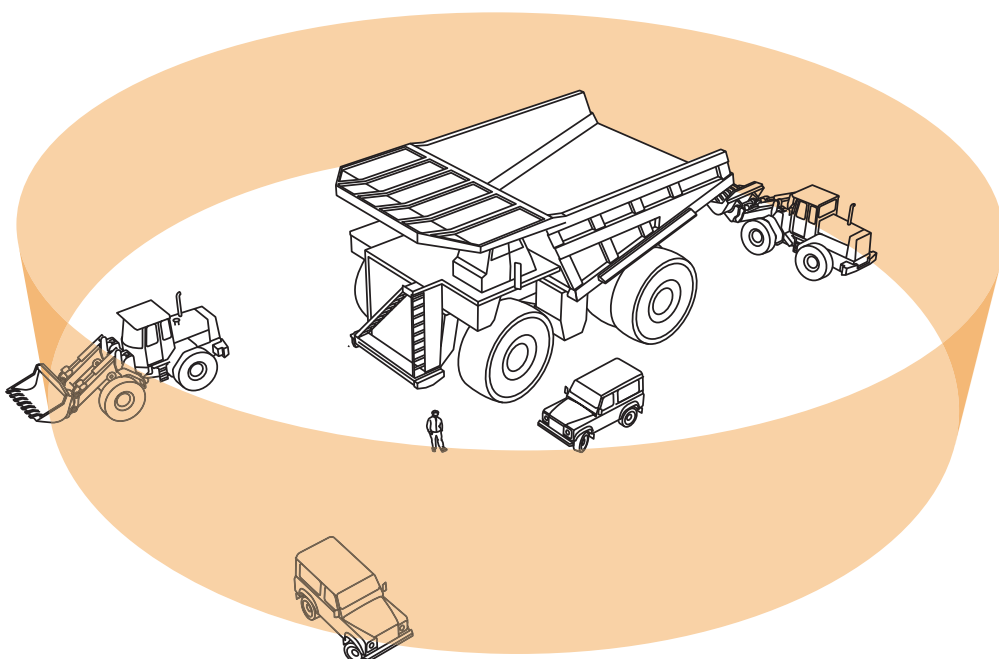
 **brigade-electronics.com**

 **+44 (0)1322 420300**

or visit your local stockist

Brigade's extensive portfolio of safety systems includes:

- **Smarteye™ 360° Camera monitor systems**
- **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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