

Customer

A supplier of heavy equipment for mining, construction and similar industries

Customer Requirement

Blind spot object detection for large vehicles

Banner Solution

R-GAGE™ QT50RAF radar-based sensors

Why Banner?

Ease of Setup – Protected DIP switches enabled quick onboard adjustment of sensing distance, sensitivity and output

Flexible Range – Adjustable sensing area of up to 15 m minimized false alerts caused by background objects outside of blind spots

Total Cost – Radar sensors provided active object detection capability without expense or downtime of more complex systems

Customer Benefits

Accident Reduction – Object detection with system alerts provided operators with time to respond to hazards and avoid collisions



R-GAGE™ QT50RAF
radar-based adjustable
field sensor

R-GAGE QT50RAF Features

- Frequency Modulated Continuous Wave (FMCW) radar detects moving and stationary objects
- Immunity to wind, precipitation, humidity, fog, changing air temperatures and light
- Operates at 12 to 30V dc with bipolar PNP (sourcing) and NPN (sinking) output

Learn More

Visit www.bannerengineering.com for product information and to locate a distributor

- [R-GAGE QT50RAF radar sensor overview](#)

Radar-Based Collision Avoidance System Helps Reduce Accidents at Surface Mining Site



R-GAGE™ adjustable field radar sensors deployed on the front and back of dump trucks used at a surface mining site are an integral component in the vehicle's collision avoidance system

Background

A single accident at a surface mining site can have devastating consequences for personnel, machinery and an entire operation. Collision avoidance systems can help mine operators minimize the risk of accidents and injury and can translate into cost reductions and efficiency improvements.

Challenges

Diminished visibility plays a significant role in many mining accidents. The size and power of excavating equipment leaves little room for error. Blind spots can be quite large and located on all sides of a vehicle. Dust, dirt and debris raised during excavation can have a detrimental effect on visibility and equipment performance. Weather conditions, such as wind, rain and snow are additional complications.

Solution

To help overcome these challenges, a supplier of heavy equipment to the mining industry installed R-GAGE™ QT50RAF radar-based sensors at the front and rear of their dump trucks. The sensors provide active object detection in vehicle blind spots without costly or time consuming alterations to existing collision avoidance devices.

The sensors emit fan-shaped beams of high frequency radio waves. To avoid false alerts, each sensor was configured to create a sensing area corresponding to its blind spot, ignoring objects outside that area. Objects entering the sensing area alter the time delay of the return signal, triggering indicator lights to illuminate. An on-board video monitoring system allows the operator to check for any obstructions.

Conditions that would have challenged other sensing technologies, like ultrasonic sensors used in consumer vehicles, were not an issue for the R-GAGE sensors. The radio waves are impervious to dirt, dust, wind, rain and other environmental challenges at the site. Each sensor is protected by a rugged IP67-rated housing, which ensures reliable operation, even when covered in caked-on mud.