



# Fatigue Monitoring & Collision Avoidance Technologies



## Close-Proximity Radar Helps Operators of Massive Open-Pit Mine Haul Trucks Avoid Collisions with Unseen Objects

### Summary



If you want to get a sense of just how big open-pit haul trucks can get, consider this: These behemoths need as many as eight radar sensors and cameras to know what's in front, along with the sides, and behind the truck. To help operators avoid collisions, a leader in accurate fatigue and distraction monitoring systems, brought together advanced technologies to create a powerful collision avoidance solution. When the company wanted to integrate radar sensing to complete its solution, it chose PRECO Electronics®—not only because of its advanced collision avoidance technology but because of PRECO's

reputation for high-quality and service.

Known worldwide for non-intrusive fatigue and distraction technology that helps prevent accidents caused by operator inattention at open-pit mines, it is routine for the company to visit customers

across the globe implementing anti-fatigue systems. Once on site, though, many mines are found to be plagued by property damage caused by collisions between the enormous ore-hauling trucks and unseen objects. Recognizing a market opportunity, they set about improving their object detection offerings.

### **Providing Safety Three Stories Below**

With customers often looking for solutions to close proximity events, their systems needed an integrative solution capable of PreView Xtreme - PRECO Electronics handling machines of such a size. Many operators are driving haul trucks that are stories tall; which is why it is not surprising when they inadvertently hit things – large rocks, berms, and even other vehicles – located far below them.



The largest of these haul trucks can carry up to 450 tons of ore. They are so big (the biggest vehicles weigh 360 tons and are 27 feet high) that they are equipped with ladders to help operators access the cabs. The ladders extend beyond the main frame of the truck and tend to be the first casualty in the event of a collision. Customers don't need to have too many ladders torn from their haul trucks to see the economic sense of investing in good object-detection technology.

Even when up to eight cameras per haul truck are installed, the integrated solution is still very cost effective. And, by integrating PRECO's PreView® Radar collision avoidance sensors with a telematics solution, customers are able to dramatically lower incident rates of costly collisions.

### **Intelligent Collision Avoidance Technology Integrated with Telematics**

Prior to integrating PRECO's technology into the telematics solution, this international fatigue monitoring company was combining video recordings, video storage, GPS, and vehicles speed to avoid collisions. But, they were still concerned about collisions with objects very close to the trucks. PRECO's object detection systems provide that close-proximity awareness.

To take their solution to the next level, the company came to the conclusion that to become a first-rate solution across the globe, they needed to add radar technology. After reaching out to international contacts and customers, conducting research, and testing different radars to discern characteristics, distance capabilities and situational functionality – they came to the conclusion that PRECO's PreView Radar sensors are configurable and a consistently reliable radar solution.

Integrated into the existing fatigue and distraction solution, the radar sensors create a powerful object-detection solution. Sending Mine Safety the combined data stream to a server provides reporting, trends, analysis, instant investigation data, and other information to help mines operate safely and efficiently.

The majority of the PreView Radar sensors were installed on haul trucks, and a number of other sensors were installed on shovels to prevent haul trucks from coming too close during loading. PRECO's heavy-duty sensors were also placed on smaller pieces of equipment including loaders and dozers.

## Significant Advantages for End Users and Partners



The benefits of the integration are clear, primarily with lower maintenance and repair costs, less equipment downtime, and better operator performance. For the fatigue monitoring company, benefits include being able to share research and development investments, including software and hardware changes.

The company agrees that having PRECO as a partner has improved customers' confidence in their systems once they saw they were using radar technology. With many of their suppliers unable to accommodate without lead times, PRECO's ability to get sensors out to their customers when they needed them proved PRECO to be an excellent partner.