Expert Cleaning along with Vehicle Protection

Ultrasonic Sensors in
High-Pressure Washing Systems

The Application

In high-pressure car wash systems, components known as spray arms travel along the outer surfaces of vehicles, spraying water at the vehicle to clean it. Ultrasonic sensors ensure that the vehicle is automatically detected and that the washing beam moves across all surfaces without making contact. As an additional safeguard, the sensors can measure the lateral distance between the vehicle and the bay wall.

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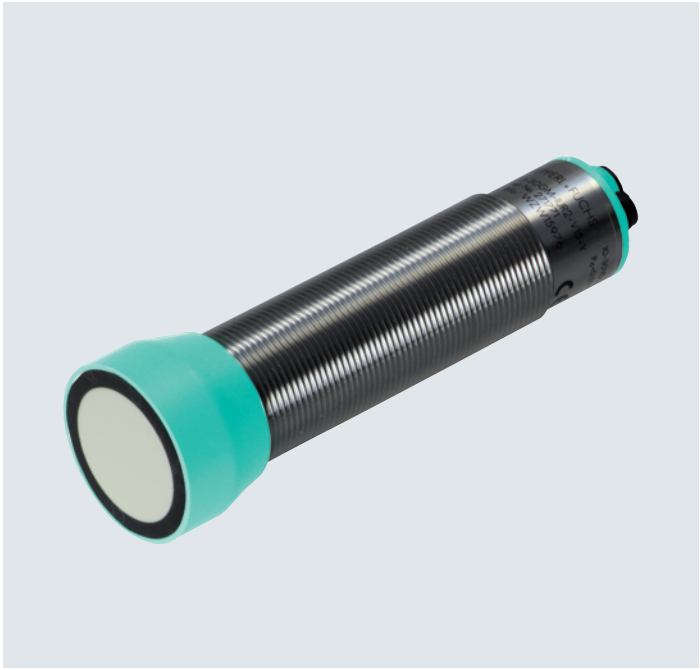

The Solution

Install a sensor on the spray arm. The floor can be taught in to the sensors in retroreflective mode to distinguish between “Vehicle” and “Floor/no vehicle”. The spray arm will then use this information when making its way around the corners of the car.

Additional sensors on one side of the system measure the distance between the sides of the vehicle and the wall to determine whether the vehicle is straight or at an angle in the bay. In doing so, they provide reliable protection against collisions, even if the car is positioned incorrectly.

This application uses type UC4000-30GM-IUR2-V15 ultrasonic sensors with a detection range of 4 m. These sensors can easily be parameterized using the ULTRA3000 software. Interference factors such as splashing water are suppressed in this way. The sensors in a washing bay synchronize automatically to avoid cross-talk between signals.

The Goal

The spray arm must remain at the correct distance from the vehicle at all times and must prevent any kind of collision with the vehicle. At the same time, the washing process must be carried out without any delays and without the spray arms making unnecessary movements. This process allows for a higher throughput. It also protects the environment and reduces costs, since it minimizes the consumption of detergents and water as well as the costs associated with waste water treatment.

The Benefits

Ultrasonic sensors detect the vehicle surface without making contact, i.e., without the risk of damage. What‘s more, sensor function is not affected by water spray or mist from the high-pressure nozzles. The sensors detect with a high degree of reliability, regardless of temperature, color, and surface finish, operating in strong sunlight, mist, and adverse weather conditions. Since the encapsulated sensors themselves are resistant to water, they are completely maintenance-free.

At a Glance:

- Safe and efficient vehicle cleaning
- Reliable collision protection
- Simple parameterization with ULTRA3000
- Powerful 4 m sensing range
- Maintenance-free operation

More information at
http://www.pepperl-fuchs.com/ultrasonic

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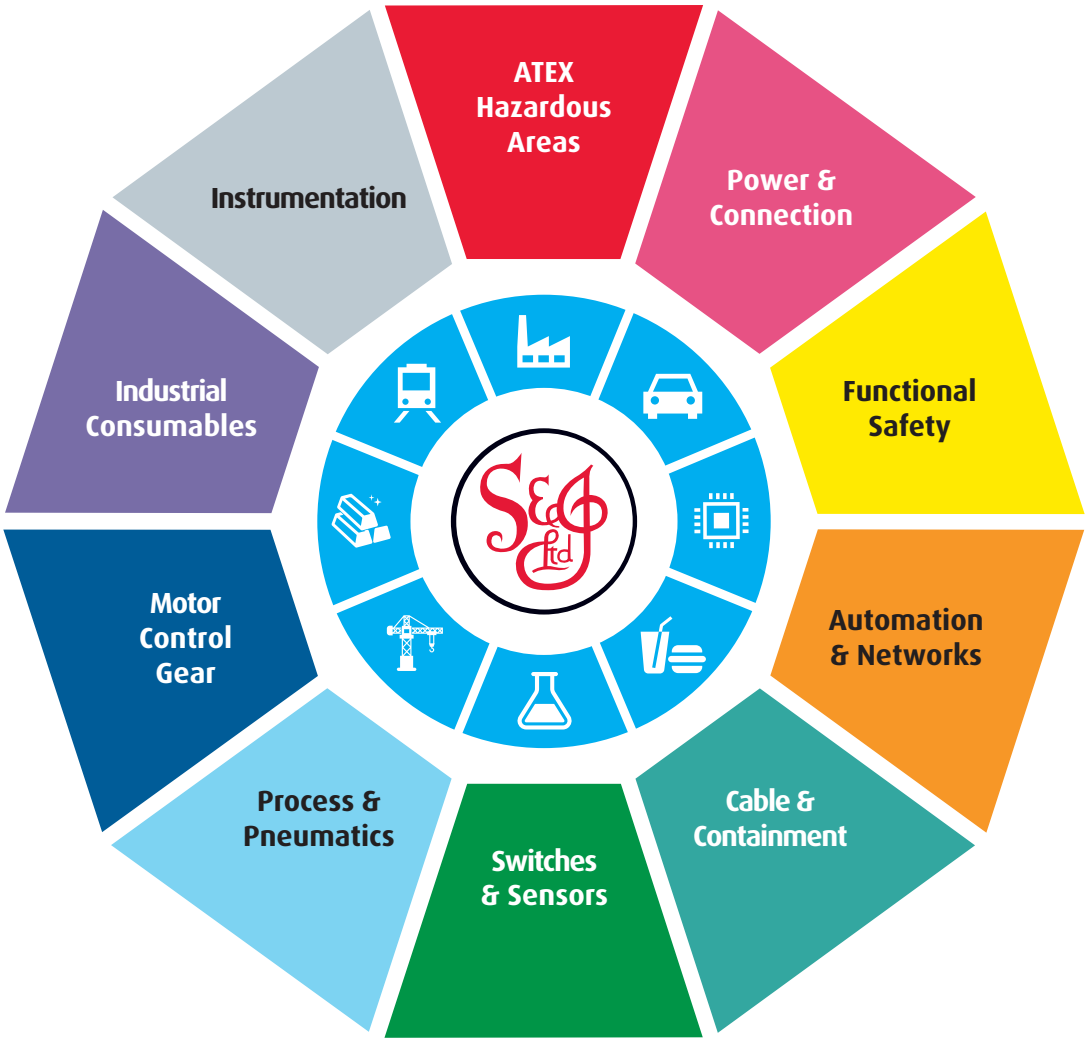

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