

Detecting Trains on the Platform

Ultrasonic Sensors in the Train Information System from HNC GmbH

The Application

Display boards on station platforms inform travelers about upcoming arrival and departure times. When a train arrives at the station, the next stops are announced. The electronic display boards are updated when the vehicle leaves the station. Reliable sensors ensure that this process can happen without incurring personnel costs. Automatic detection at the platform is crucial for routing trains efficiently and providing travelers with accurate, up-to-the-minute information.



The Goal

To determine whether or not a track is free, the sensor must reliably detect trains of any shape and color. Also, the sensor must work regardless of reflective surfaces or unfavorable weather conditions such as strong sunlight, mist, and snow. The same applies for dust clouds or exhaust gas. The sensor must be able to detect the train even if the coupling gap between two wagons enters the detection field.

The Solution

The detection system from HNC determines whether or not a track is free using a UB4000-30GM series ultrasonic sensor from Pepperl+Fuchs. The sensor is mounted above the platform. With its large detection range of up to four meters, the sensor can be installed directly on the display board or under the platform roof. The sensor is pointed at the vehicle at an angle from above and detects the outer edge of the roof of the train. On platforms that accommodate short trains or two trains on a single track at the same time – a sensor is installed at both ends.

The Benefits

The ultrasonic sensors detect the trains regardless of their shape and color; the visual appearance of the exterior does not matter. Since the sensor's sound beam is large in diameter, it covers a correspondingly large surface. This ensures detection even in the case of unusual contours or coupling gaps between two wagons.

Wet or dirty trains are detected with the same reliability as those with reflective surfaces. The measurement is not affected by snow, mist, dust, or exhaust gases.

The sound-producing membrane vibrates, preventing any significant build-up of dust or dirt on the sensor itself. The sensor requires no maintenance or cleaning work. In small stations with intermittent train traffic, displays and platform lighting can be automatically set to power save mode to save energy.



At a Glance:

- Reliable detection regardless of color, surface, and weather conditions
- Steady signal even in case of coupling gaps
- Maintenance-free operation
- Cost reduction thanks to automatic activation of power save mode for display boards
- Can be used immediately with factory settings

Additional information is available at www.pepperl-fuchs.com/ultrasonic



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