

Application Notes...



Water spray vehicles

In land fill sites, road construction, open quarries and even coal mountains, keeping dust to a minimum is vital so as not to disturb local residents and to keep the ground compacted. This is achieved by constant spraying with water.

Brief given

With water becoming an increasingly precious commodity, it is important for vehicle operators to know exactly how much is being sprayed. Also, it is just as important to know how much water is left in the tank at any given time so that the vehicles can be used most efficiently between refills.

Sensor-Technik was asked to implement a level sensing and control solution that would provide operators with accurate information on how much water is being sprayed and how much is left in the tank. The sensor had to be very robust and operate over a wide temperature range as the vehicles are exported all over the world and used in extreme climatic conditions.

Further, the solution had to be suitable for use by non-skilled operators, providing simple set-points and audio alarms.

The solution

Sensor-Technik suggested the use of a pressure transmitter fitted to the bottom of the tank and connected to a digital readout. This single sensor solution would provide readings for both the level in the tank and the rate of delivery of water.

Implementation

Whilst the implementation and installation were conceptually simple for Sensor-Technik, two issues had to be resolved. The first was that, during filling of the tank, the water pressure on the sensor from the jet stream was greater than under normal operation, leading to over-pressure readings. This was overcome by moving the sensor to a quieter corner of the tank.

Secondly, operators reported some instability of readings. This turned out to be due to the fact that the sensor was very sensitive compared with the digital display. The problem was overcome with filtering electronics to average the sensor output, with Sensor-Technik striking the right balance in the filter to combine stability of the reading with accuracy.

Conclusion

By combining a simple display and a pressure transmitter, a cost-effective solution was developed that helped maximise the efficiency of vehicle use, reducing wear whilst delivering operators savings on time, fuel and money.

Sensor-Technik

Complete solutions

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With our in-house design capabilities, the resources of our own machining facilities, decades of applications experience and approvals from the likes of the Ministry of Defence and NATO, we can tailor a standard product to meet your exact requirements.

Sensors and displays

From pressure sensors to load cells to encoders – and many other electro-mechanical products besides – Sensor-Technik has one of the widest ranges of products available. Further, Sensor-Technik's sensor products are all available as standard with read-out units that provide clear indication of the parameter being measured.

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