

Application Notes...



Timber lorry crane

With the police stringent about enforcing weight limits on public roads, lorries that collect timber from forests for delivery to saw mills have to tread a delicate line balancing the need to stay under the limit with the economics of efficient collection.

The accurate loading of timber lorries to a maximum weight is difficult because the vehicle is never sitting on a flat level surface. But one company came up with the idea of measuring the load on the crane with each log, and summing the individual measurements to give a total load.

The strategy was to use the pressure measured through a hydraulic link to extrapolate an accurate weight. Force is measured via a hydraulic link and the pressure is calculated to an accurate weight.

Brief given

Sensor-Technik was asked to supply a pressure sensor that could be fitted to the hydraulic link and give a simple and easy output to a small handheld computer. The solution needed to be simple to install and extremely rugged.

In particular, the sensor had to be able to withstand wide temperature ranges since lorries are sold into the hottest, coldest and most damp corners of the globe. For example, a frequently encountered problem is that, once the loading is complete, the crane sits on top of the load, with the electronics potentially

exposed to severe wind chill factors driving along the roads, as well as water spray and snow.

The solution

Sensor-Technik recommended a thin film pressure sensor, with on-board electronics providing a pulse output for easy interfacing to the computer. To provide the required ruggedness, Sensor-Technik took a highly stable sensor with a large over-pressure range and sealed it inside a stainless steel housing. The housing was gas-filled to eliminate the possibility of condensation and minimise temperature effects.

Implementation

Following in-house trials, units were supplied to vehicles destined for use in many different parts of the world.

Conclusion

The solution met the requirements both for accuracy and reliable operation in demanding environments. Six months on, there have been no reported failures and the operators have praised the accuracy and stability of the solution.

Sensor-Technik

Complete solutions

Sensor-Technik is fully able to meet your systems needs, by offering a unique product design and manufacture facility to build up complete sub-assemblies where necessary, from development of specifications to delivery of the finished product, guaranteed to offer performance and reliability in even the toughest of environments.

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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