

How to avoid issues with fitting TPMS on Rubber Tired Gantry Cranes

When fitting a Tire Pressure Monitoring System (TPMS) to rubber tired gantry cranes, several technical issues can arise. Evidently they all need addressing by a reliable, experienced TPMS provider. Here are some examples:

Wireless Connectivity

Gantry cranes straddle the containers that they are lifting, with a set of wheels on either side of the container. These metal containers can easily block radio transmission from one side to another. For this reason it may be necessary for some systems to include additional repeaters to amplify the signal sufficiently to get to the main controllers.

The metallic structure of a gantry crane itself can also cause interference and obstruct the wireless signals. This interference may result in poor signal quality, dropped readings, or limited range, affecting the reliability of the TPMS.

TMS® system, with its market leading sensitivity and multiple individual receiver channels, can generally be fitted without any of these additional repeaters. This improves overall reliability, by minimising hardware and connections.

With details of the proposed crane layout and dimensions, TMS will be able to advise on optimum antenna positioning to ensure reliable transmission and reception.

Sensor Placement

Mounting the TPMS sensors on rubber tires can be tricky due to the dynamic nature of crane movement. You must securely attach the sensors to the tires and position them correctly to provide accurate and consistent readings. However, the constant vibrations, jolts, and rapid changes in tire position during crane operations, can lead to sensor detachment or misalignment. This can result in inaccurate tire pressure readings.

We designed the TMS® sensor for optimum size and output transmission strength. It is ruggedised to withstand harsh environments, including coastal regions. These features of the TMS® Sensors simplify installation and ensure they are aligned and secure. TMS® sensors can be supplied with the T-piece to aid installation. This T-piece has been designed by a leading OTR valve expert. It is the lowest profile T-fitting on the market.



Power Supply

TPMS requires a power source to operate. Installing the necessary power supply infrastructure on a rubber tired gantry crane can be challenging. It may involve running new cables and ensuring proper voltage compatibility. In addition, it is important to protect the power supply components from environmental factors like dust, moisture, and vibrations. Also, it's very easy to accidentally connect the supply the wrong way round, so reverse polarity protection is essential. Battery voltage levels vary on different plant so supply voltage must be compatible.

All these features are found on the TMS® product with a voltage range covering both 12 and 24VDC systems, which improves flexibility.

Environmental Conditions

Rubber tired gantry cranes often operate in harsh environments, such as ports or construction sites. These environments expose the TPMS components to dust, debris, extreme temperatures, and moisture. Such conditions can adversely affect the performance and longevity of the TPMS. This can lead to sensor malfunctions, false alerts, missed alerts or premature system failure.

The TMS® Sensors are fully ruggedised and are specifically designed for extreme environments. TMS have been successfully supplying to harsh environments like ports, mines, quarries, construction sites for decades.

Maintenance and Calibration

After considerations on the reliability of the system, users should also be mindful of the operational aspects of using the TPMS.

Some TPMS require regular maintenance and calibration to ensure accurate and reliable readings. However, accessing the sensors and monitoring system on a gantry crane may be challenging due to their elevated position. Specialised equipment or personnel are often required. Regular maintenance may involve checking batteries, recalibrating sensors, or updating software, which can be time-consuming and require crane downtime.

It's important that the TPMS readings received are accurate and remain accurate. As part of the production process, the TMS system is calibrated to national standards over the full operating range. The calibration allows for any drift over the system's lifetime. The system needs no further calibration during its operational life.

In addition, the TMS® Sensors are designed to be maintenance-free by design. Because of this they can withstand all the rigours of vibration, temperature cycling and the harsh coastal weather.

Tire Monitor System

West Road House
West Road
Buxton
Derbyshire
SK17 6HF

T: +44 (0) 1298 77166

E: enquiry@tiremonitorsystem.com

www.tiremonitorsystem.com



Integration with Existing Systems

Integrating the TPMS with the crane's existing control and monitoring systems can be complex. It may involve developing custom interfaces, protocols, or software integration to enable seamless communication between the TPMS and other crane systems. Compatibility issues or communication errors during integration can lead to data discrepancies or system failures.

TMS work with you to ensure our systems are compatible. The comprehensive API makes integration to third party equipment straight forward. It's important to overcome these technical issues, so ensure you involve experienced professionals who can design and implement a TPMS solution tailored to the specific requirements and challenges of rubber tired gantry cranes. Thorough planning, proper installation, regular inspections, and reliable wireless communication solutions are key to ensuring the successful implementation and effective operation of TPMS on gantry cranes.

At TMS®, we have the products and experience to provide a reliable cost-effective solution for a TPMS for your application. We would be happy to discuss your requirements. For further information call 01298 77166 or email enquiry@tiremonitorsystem.com

Tire Monitor System

West Road House
West Road
Buxton
Derbyshire
SK17 6HF

T: +44 (0) 1298 77166

E: enquiry@tiremonitorsystem.com

www.tiremonitorsystem.com

Company registered in England No. 03306387