

The limitations of buying low-cost Tire Pressure Monitoring Systems (TPMS) for your OTR Vehicles

Introduction

Like all product types in all market sectors, there is a bewildering choice of products in the TPMS world as well. These range from simple systems for very low prices, available from resellers such as Alibaba at one end of the scale, and extremely sophisticated packages from the main tire manufacturers at the other. In addition, there's a whole range of very specialist products for niche applications.

TMS® specialises in TPMS systems for industrial and Off the Road (OTR) vehicles. The following points can be used to make a comparison between the TMS® product range and the lower cost TPMS products in order to help make an informed buying decision:

Sensor types

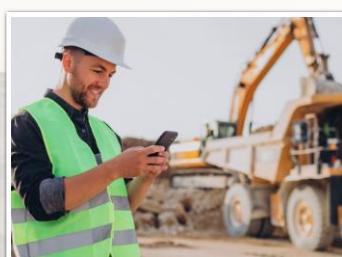
Many lower cost systems only have external sensors with very weak transmission power. This may be suitable for use on domestic vehicles but would struggle to perform on larger OTR vehicles.

A typical system from a well-known supplier has a transmission field strength that when compared to the TMS product would give less than 1/16th of the range, everything else being equal.

Also, TMS® offers a range of sensors for different applications. These can be mounted on the valve stem or mounted inside the tire. The type of mounting can also be selected, including patches on the tire wall and magnetic mounting on the rim itself. These sensor types are also available in liquid-proof versions and can also accurately monitor tire temperature as well as pressure.

Calibration and credible data

There is no point in investing in a TPMS system if you don't have confidence in the readings and information provided. All TMS® systems are pre-calibrated as part of the manufacturing process and both pressure and temperature are measured to industry leading accuracies over the widest range. You can have confidence in the accuracy of the data measured and logged and this will create a credible record of how the tire has been used over an extended period. This can be incredibly useful when having difficult conversations with your tire supplier as opposed to snap-shot readings on a sheet of paper (or Excel sheet) measured periodically and probably randomly on non-calibrated equipment!



Product Reliability and Warranty

Thanks to the TMS[®] superior design specifications and materials used in the construction, we are confident that the products will withstand the test of time in the field. Having been in this market for almost 30 years, we have the real evidence to justify this claim.

In fact, TMS[®] is so confident in their products they offer a 2-year warranty on all components which is unheard of in the industry and is another factor that gives buyers confidence and peace of mind.

Signal reliability

Product reliability is important but is only one aspect of the offering. It's equally important that the user has total confidence in the ability of the TPMS to always pick up the signals from the remote sensors through the RF communications. For maximum confidence TMS[®] have adopted a 433MHz system which has much greater signal propagation and is much more likely to achieve totally reliable communications than the alternative Bluetooth which runs at 2.4GHz. We believe this choice give the best combination of signal reliability and battery life.

But beyond just the frequency and the signal power, we also ensure the Receiver is extremely sensitive and has the ability to receive the data signal, even where the signal looks like its lost in the background noise. This is achieved by using advanced and unique tuning techniques. Also, with the receiver having four independent RF channels, there is multiple signal redundancy. Having multiple channels gives spatial diversity and avoids common problems such as multi-path fading or nulling effects. If one antenna can't pick up a signal, it will be picked up on one of the other channels. This is a world leading and powerful feature unique to TMS[®].

Specifically designed for the OTR environment

Lower cost manufacturers are always aiming for volume, which is one reason they can achieve lower prices. Because of this, they can only ever make a generic product that is not specifically designed for any particular vehicle or situation. TMS[®] only makes TPMS systems for industrial and OTR vehicles and in smaller volumes. The range is tailored specifically to the exact requirements of this niche market.

Construction

Leading on from the above, budget products would generally have a plastic injection-moulded housing for the various components and a construction that is designed with a budget in mind. Our designs are primarily designed to be "fit for purpose" and to be able to withstand the rigours of these industrial applications. Including extreme vibration, constant temperature cycling across a wide range, electrical interference and saline filled or dusty atmospheres. Where necessary, you'll find the housings are metal and coated to withstand these conditions.

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Standalone or connected

If it is just necessary to indicate to the vehicle operator that there is an issue, then a standalone system may be sufficient, but many fleet owners want to see all the data remotely, have a real-time overview of the whole fleet on a custom dashboard and a historical record of all of this data. The TMS® range can be linked through Telematics or WiFi to a web portal. This allows all tire parameters to be monitored remotely and any parameter that is out of specification is clearly visible.

Remote warnings and Alarms

Along with the dashboard overview of all the vehicles, managers can also receive warnings (less urgent) and alarms (high priority) remotely. These can be setup as emails or SMS text messages. So fleet managers are always aware of tire issues as soon as they happen. Lower cost products are not able to offer this functionality.

Communications

As well as options to link to TMS-Remote (our web portal), it is also possible to link to other third party devices using the fully documented API. Another communication option is the CANbus output, which can be used in order to link the collected tire data to onboard displays and the like. Only high-end, modern and complex products like the TMS® range will have these capabilities.

The system can also be connected using the TMS Airlink option which enables additional Bluetooth Low Energy and WiFi connectivity.

Any time, any place, any where?

The TMS® range of tire pressure monitoring products is suitable to fit on any vehicle, any tire and be used for any application (in the industrial and OTR range).

There is no need to link the TPMS to the tire manufacturer, leaving the site operator free to purchase the best-in-class tires for each application and each vehicle.

Flexibility and programmability

As TMS® needs to cover a large range of situations, vehicles within the OTR market, the product is designed to be totally flexible. So the same system is used for the simplest 4-wheel loader up to the largest 24-wheel mobile crane. It can be standalone or fully connected. The user is able to configure all the settings, as required. This is vastly different to the situation with low-end products.

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Data logger with RTC

Whilst most cheaper, more basic systems will simply display the tire pressure, we not only gather and display the tire pressure but also the tire temperature and this information is logged and time-stamped in the TMS35 Hub. An internal Real Time Clock and the ability to set the time locally around the world means this is a powerful source of operational data. With over 4 million events being stored for later use, analysis of tire incidents is a simple task.

Free TMS App

Following on from the above, the data is logged at the Hub but this data is only any use if you can view and interpret it easily. This is where we provide a free Progressive App which can be used on your Smartphone, tablet or laptop. The App allows users to easily interpret the data and provide reports to management at the touch of a button.

Atmospheric pressure

Measured pressure is obviously impacted by the local atmospheric pressure, so low cost, simpler systems would show an error when used at different altitudes. As TMS is sold around the world, including in a number of high altitude applications, we monitor and adjust actual readings in line with atmospheric pressure which is accurately measured in the Hub.

Return on Investment

As with most complex industrial purchases, the TPMS purchase decision is much more related to the Return on Investment than simply the purchase price, so it's critical to consider what you get for your money. The data gathered using these systems is extremely valuable and having the confidence that the monitoring system will actually perform is critical to its adoption and acceptance. Missed or false alarms and inaccurate readings would all mean confidence in the system would plummet and its continued use be put at risk.

There is always a place for budget systems and these are extremely popular on many applications and in many cases will meet the requirements of the user but they are generally not suited for the more complex and more demanding applications found in OTR vehicles in mines, quarries, construction sites and ports etc

There are immense benefits from investing in a well-chosen TPMS. Implementing a TPMS not only helps mitigate risks associated with tire-related issues but also contributes to the overall success and sustainability of your operation. **TMS**[®] provides TPMS solutions for all types of industrial and OTR vehicles and for all manufacturers of tires.

[Click here](#) if you would like further information or if you are interested in a free trial of the **TMS**[®] Tire Pressure Monitoring System for your industry.

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