

# Presentation of TPMS

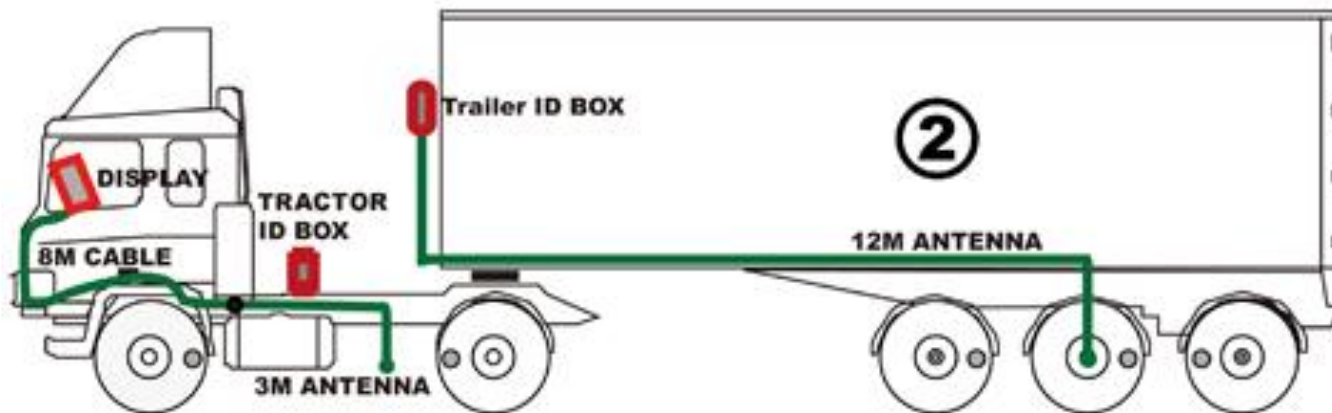
## for Heavy Commercial Vehicles

**Shanghai Baolong Automotive Corporation**



# What is TPMS?

TPMS stands for **Tyre Pressure Monitoring System**. With a transmitter inside each tire to monitor tire pressure and temperature in real time, and to send out wireless RF signal tire data to display and receiver inside the cabin, it will provide real-time monitoring of all tires, including tire pressure and temperature and will give warnings about abnormal conditions such as low pressure, high pressure, high temperature and leakage, then to make sure all your tires are always under the **correct** condition.



# Why TPMS?

## Under-Inflated Tyres Reduce Vehicle Safety

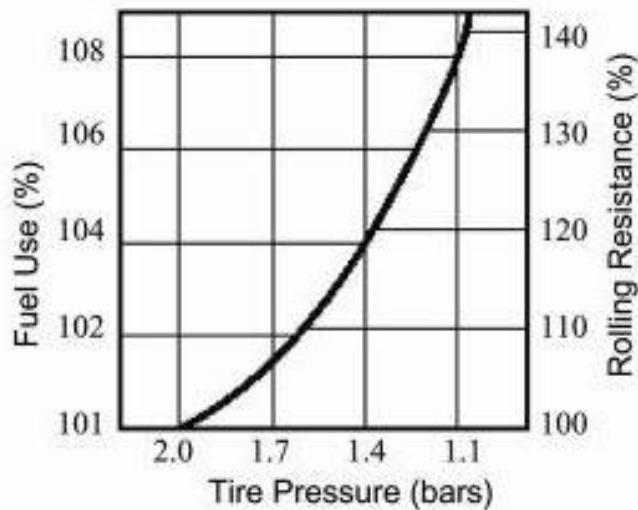
On US roadways an estimated 23,464 accidents and 535 fatal accidents annually involve blowouts or flat tires. *(Source: NHTSA 49 CFR Part 571)*

Each year over 40,000 EU citizens are killed and over 3.5 million are injured in transport crashes. Only in Germany 6000 road accidents happen every year, which are caused by tire related problems. *(Source: Continental AG)*



## Under-Inflated Tyres Increase Fuel Consumption

Because of the great increased rolling resistance, a deficient pressure of just 0.2 bar can lead to an increase in fuel consumption of one percent. If the deficiency is 0.6 bar, the fuel consumption increases by four percent.



Increased Fuel Use and Rolling Resistance with Lower Pressure

*(Source: Continental Tyres)*

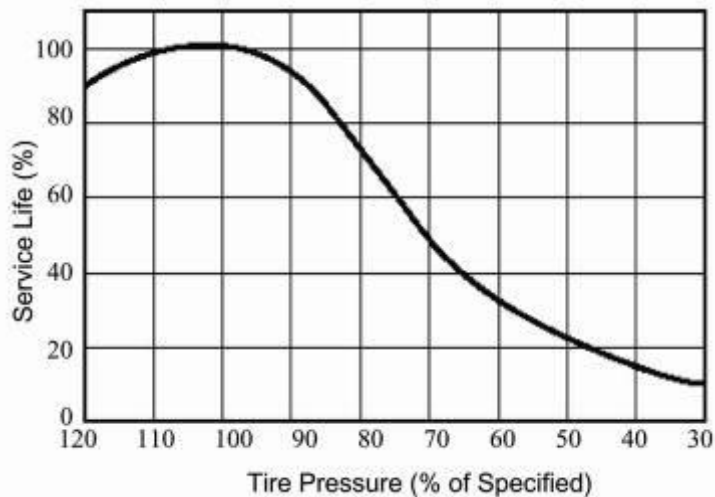


## Under-Inflated Tyres Reduce Tyre Life

20% underinflated has a running life 30% less

30% underinflated has a running life 45% less

20% overinflated has a running life 10% less



Decreased Tyre Life with Lower Pressure

*(Source: Continental Tyres)*



## Under-Inflated tires Increase CO<sub>2</sub> Emissions

An estimated 93.5% of motorists in the EU are driving on under-inflated tires and causing additional 18.4 million tons of carbon dioxide to be released into the environment, according to a recent analysis by Bridgestone Europe.

That works out to an extra 6.9g CO<sub>2</sub>/km for every car on European roads.



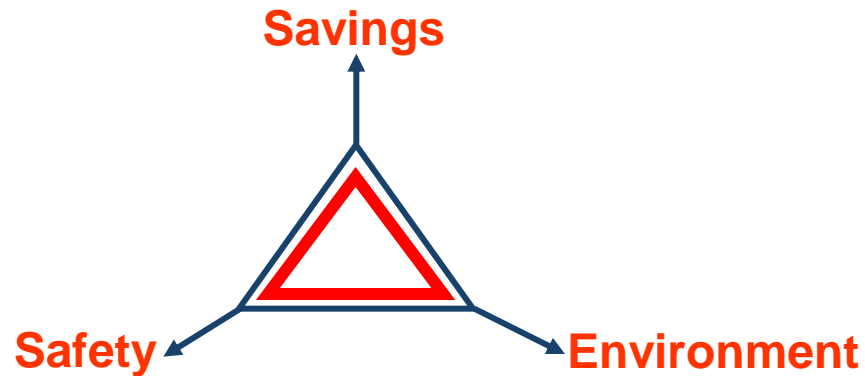
## TPMS helps to...

Make sure that all your tires are always under the **correct** condition!

Improve vehicle safety and save lives!

Increase fuel economy!

Extend tire life!  
and reduce CO<sub>2</sub>!



- Truck fleets recognize that tires are "capital goods" for them.
- The deficiency of pressure is 0.6 bar, the rolling resistance increases by 20%, which can increase fuel consumption by 6% and overall expenditure by close to 2%.
- Therefore, professional tire resource management, such as TPMS, can significantly lower operating cost-per-mile.

*Source: Michelin*



# Featured Technologies

- **Easy driver interface**
- **ID chip technology**
- **Hand-held tool and yard receiver**
- **On-line real-time tire monitoring supports for fleets**

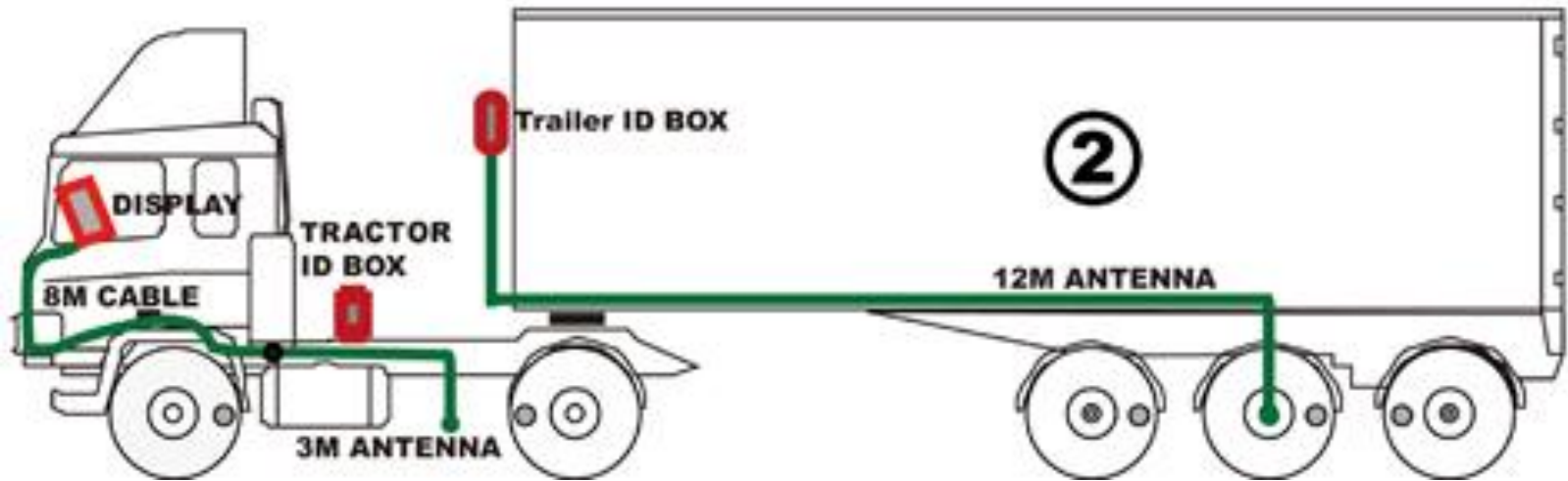


# Main Components



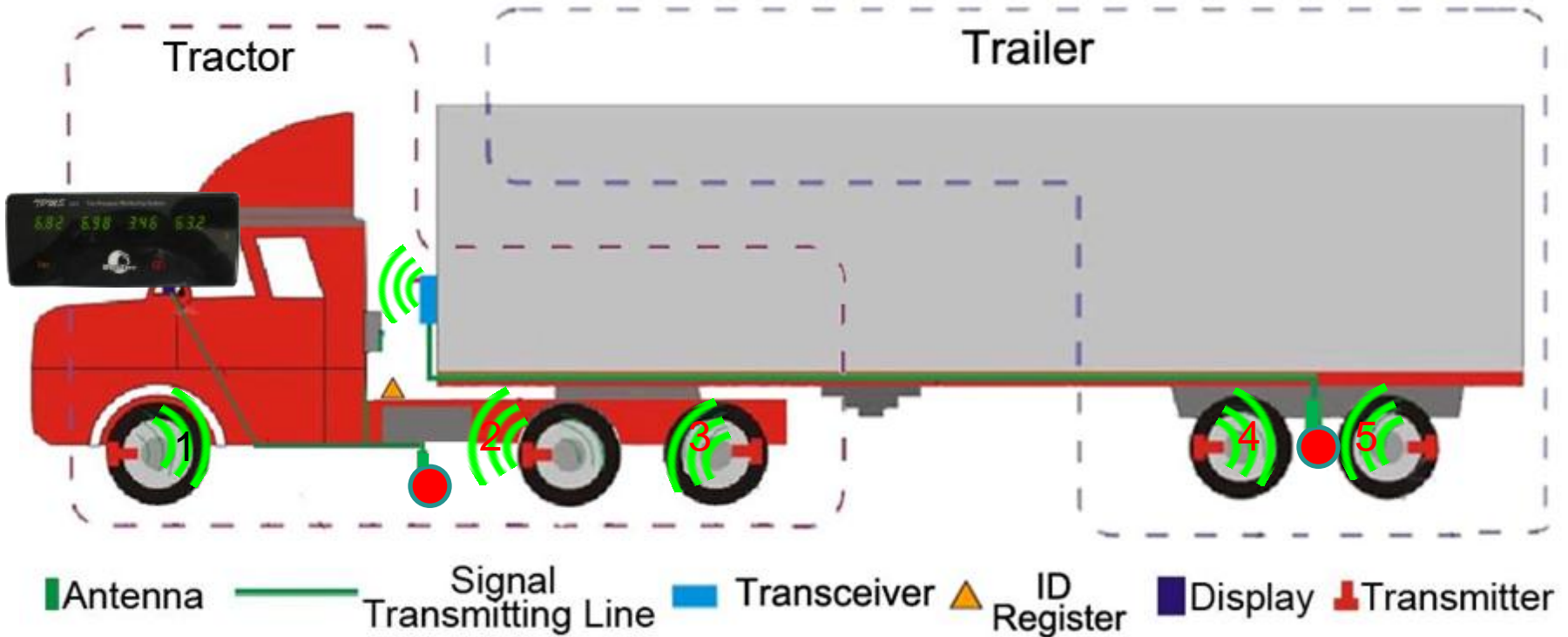
# Mounting Diagram

## Tractor and Trailer



Types of signal transmission from trailer to transceiver

How is it working?



# Basic functions

- Real-time monitoring of all tires
- Low pressure alarm
- High pressure alarm
- High temperature alarm
- Air leakage alarm
- Tire history data storage

Benefit: Make sure that all your tires are always under the correct condition, and drivers can have the abnormal tires repaired in time and prevent them from further problems.

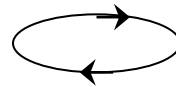


## Display in Normal Condition

The display will monitor tires 24 hours and show each axle tires' pressure for 5 seconds and automatically switch to next axle when all tires are normal.



Pressure Interface



Temperature Interface



## Low Pressure Warning

When current pressure in the tire is 20% lower than baseline pressure: ①Display show the pressure of axle with abnormal tire; ②Warning sound “Di-Di”; ③ Abnormality icon “ (!)” appears; ④The digits of abnormal wheel position twinkle.



The figure shows “2B” tire is underinflated. The display will always show the axle 2 until the problems are corrected.



## High Pressure Warning


When current pressure in the tire is 30% higher than baseline pressure: ①Display show the pressure of axle with abnormal tire; ②Warning sound “Di-Di”; ③ Abnormality icon “ (!) ” appears; ④The digits of abnormal wheel position twinkle.



The figure shows “4D” tire is over-inflated. The display will always show the axle 4 until the problems are corrected.



## High Temperature Warning


When temperature inside tire is higher than 80°C (176°F): ①Display show the temperature of axle with abnormal tire; ②Warning sound “Di-Di”; ③Abnormality icon “” appears; ④The digits of abnormal wheel position twinkle.



The figure shows “4A” tire is over-hot. The display will always show the axle 4 until the problems are corrected.



## Leakage Warning

When 0.33 Bar is lost from the tire in 16 seconds: ①Display show the pressure of axle with abnormal tire; ②Warning sound “Di-Di”; ③Leakage icon “” appears; ④ The digits of abnormal wheel position twinkle.



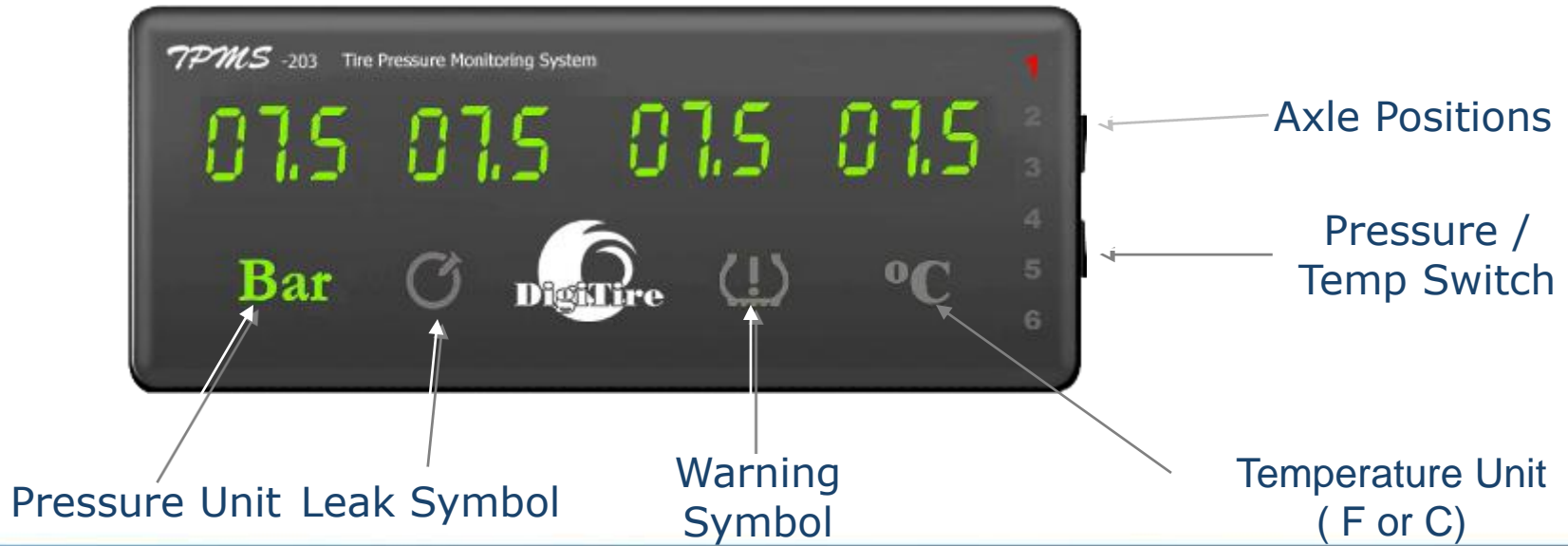
The figure shows “4A” tire is leaking. The display will always show the axle 4 and until the problems are corrected.



# Display Unit

## The Easy Driver Interface

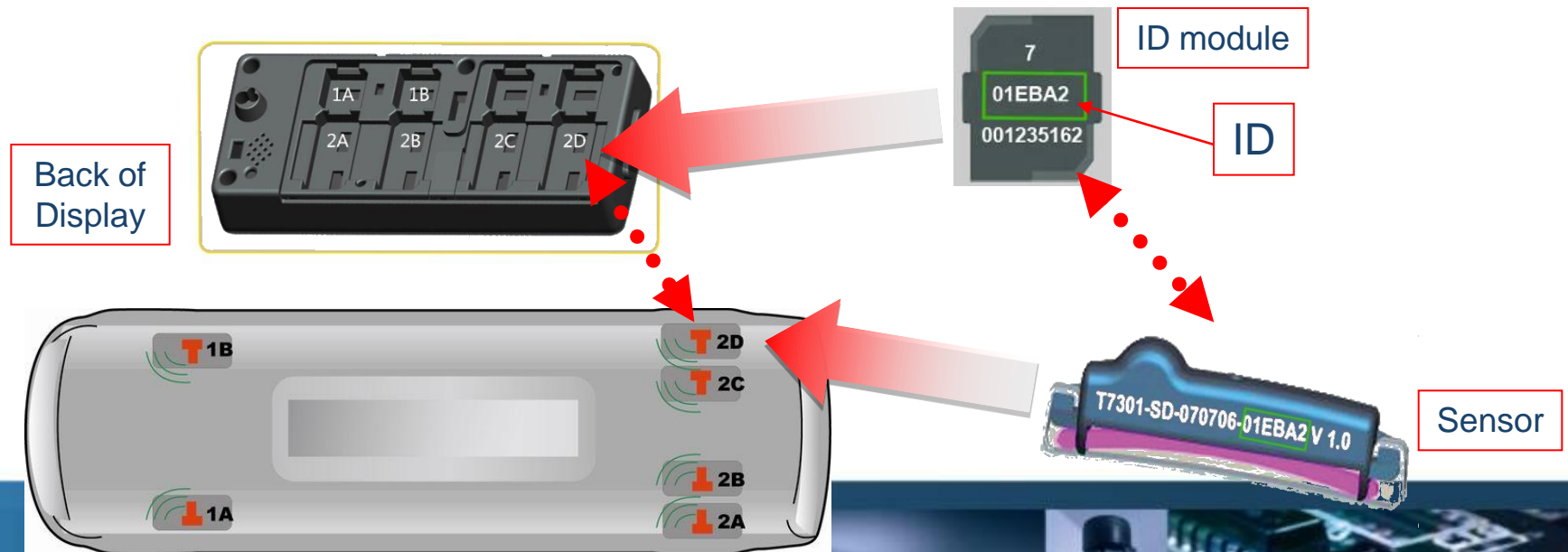
- Large fonts that is easy for drivers to look at
- Easy to switch between air pressure and temperature
- Clear **signs**, quickly know the exact problem on any warning



# ID Chip Technology

## Easy Initial Installation

- Each sensor has a corresponding ID Chip that will be installed in the back of the display unit during the initial installation.
- The ID chip slot on the back of display corresponds with the wheel position in the vehicle.
- This technology will save the time-consuming/complicate sensor ID learning process in the initial installation and specially suit the big fleet.



# Fleet's Tyres Maintenance Management!

Our product provides 3 levels supports on

- **Handheld tool** for small to medium sized company
- **Yard receiver** for medium to big sized fleets
- **Data interface** for medium to big sized fleets



# Hand-held Tool

## Your Wireless Relearn & Download Tool

When you change tire positions, or replace a sensor, use this wireless hand-held relearn tool. From receiving sensor ID to sending information, everything is wireless and very easy to work with.

You can also use it to download your TPMS history and save it in your computer.



# Yard Receiver

## Your Wireless History Download Tool

When you bus come back to your yard, all history of the tire pressure and temperature will be automatically downloaded wirelessly into fleet management computer for the management to review.



Coming soon!



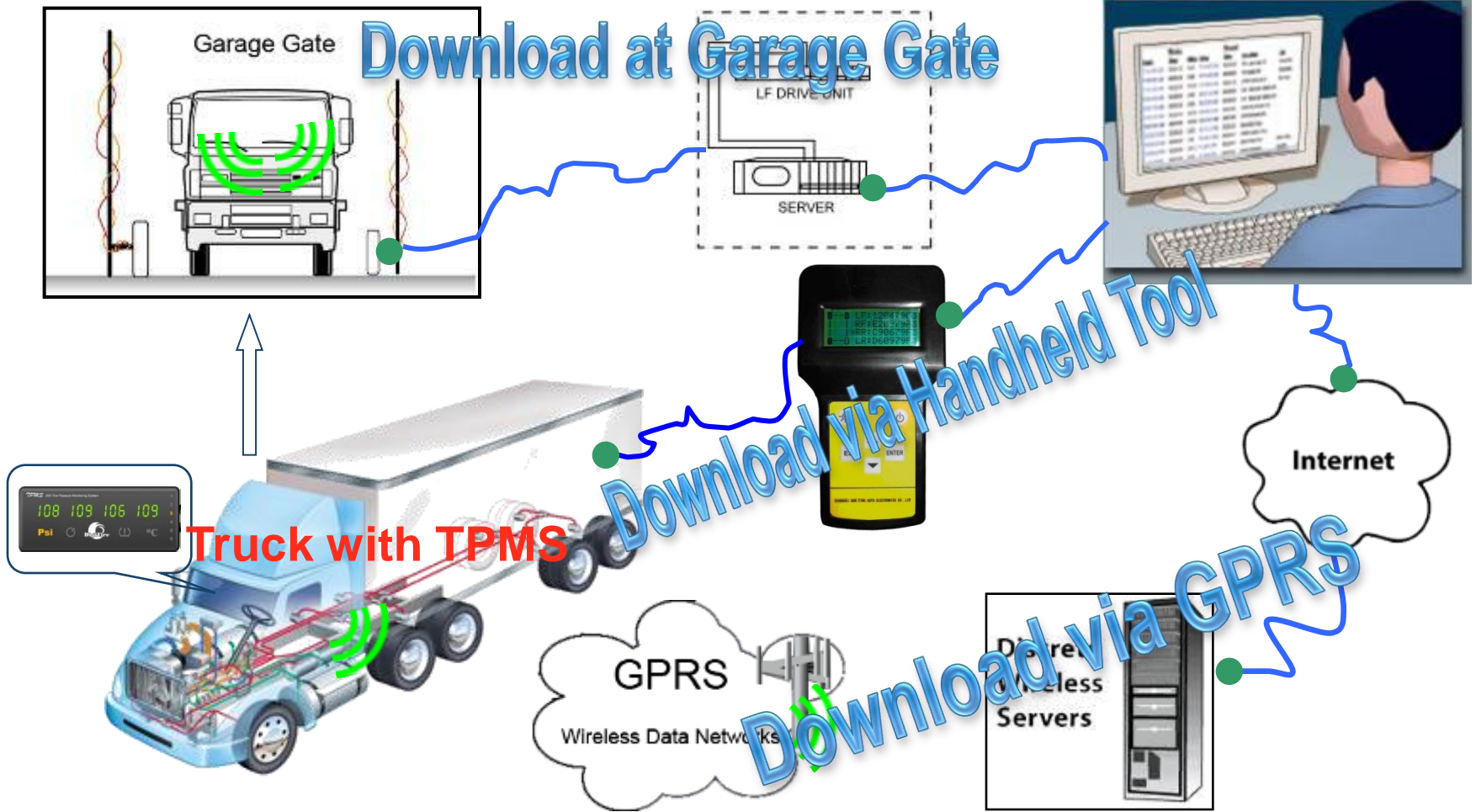
# Managing your Tires Wirelessly

## Real time monitoring Tool for the fleet management

You can either real-time track the tire pressure and temperature of all the tires in your fleet through the wireless data service of our partners.

Or, we can work with any of your existing or potential wireless data transmitting supplier, to transmit tire pressure and temperature data to your management desk in real time.





# Thank You !

**Shanghai Baolong Automotive Corporation**

