TPMS-222 Owner's Manual

Wireless Tyre Pressure and Temperature Monitoring System

Document: 920-9001 Revision A

4th March 2012

Inawise Pty Ltd

1. Table of Contents

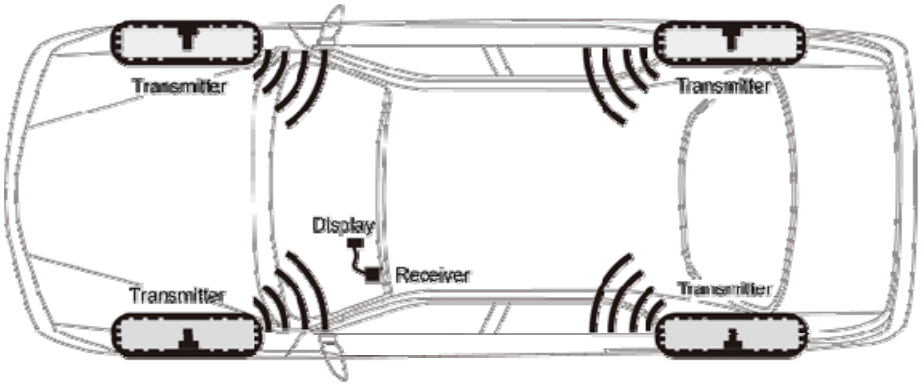
2. General

- The TPMS-222 are wireless TPMS (Tyre Pressure Monitoring Systems) specifically designed for “In-Dash” mounting.
- Thank you for purchasing a genuine Inawise product.
- Please read and follow the installation guide carefully in order to get the most out of the product and to ensure reliable and dependable operation.
- This product should not be used for any other purpose or use, or installed in any other way, other than that described in this manual and the installation manual.
- In order to get the most of what this product has to offer please read this manual thoroughly and ensure you understand how this product works, the benefits it provides, and the limitations it has.
- Running your vehicle with the correct tyre pressure will not only improve the handling of the vehicle but will reduce petrol consumption and significantly reduce tyre wear. While this product alerts the driver when a tyre condition has reached a dangerous level, the product can also be used to quickly and easily check the tyre pressures, enabling to driver to monitor these pressures and then adjust them to an optimum level at regular intervals.

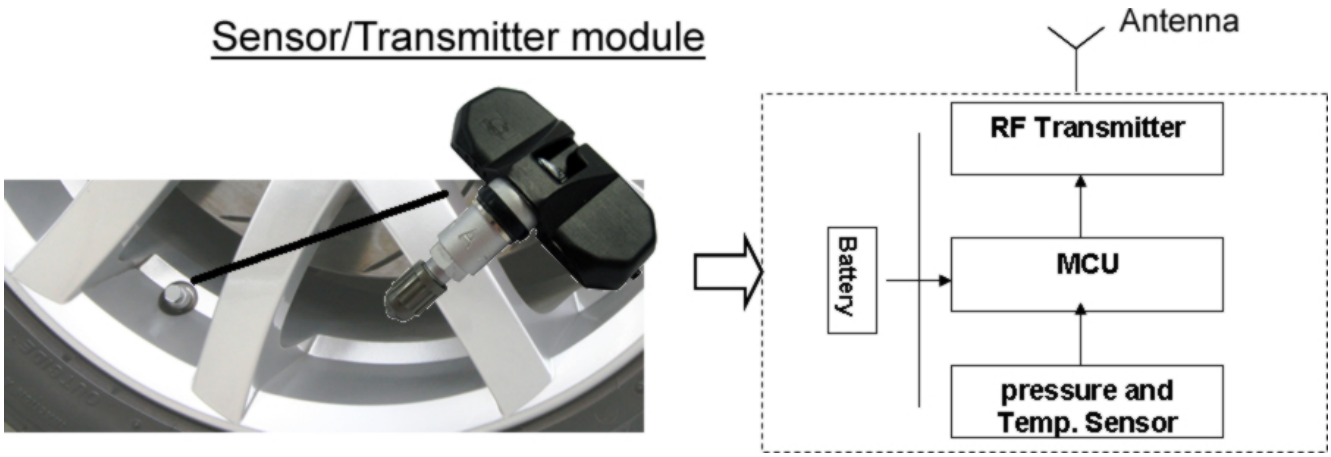
 **ATTENTION**	Throughout this manual you will see the following symbol. The symbol denotes guidelines that must be followed to ensure the safety of your vehicle is not compromised.

3. Principles of Operation

After turning the vehicle Accessories power on by turning the vehicle ignition switch, the display will illuminate and display the pressure and temperatures of the vehicles tyres. All tyres are continuously monitored whether the vehicle is stopped or moving, or whether the accessories power is turned on or off. Audible and visual alarms are given only when the accessory power is on and when an abnormal tyre condition is detected by the system. As the system monitors the tyres even when the vehicle is moving, the driver is notified of a problem as it occurs, providing the driver with a “real time” notification of a potential danger.



Each tyre has a monitoring module (sensor/transmitter) installed inside the rim to monitor pressure and temperature in real time. This data is sent to the receiver wirelessly via a Radio Frequency (RF) transmission and displayed on the display. The system will provide warnings about abnormal tyre conditions such as air leakages, low pressure, high pressure and high temperatures.



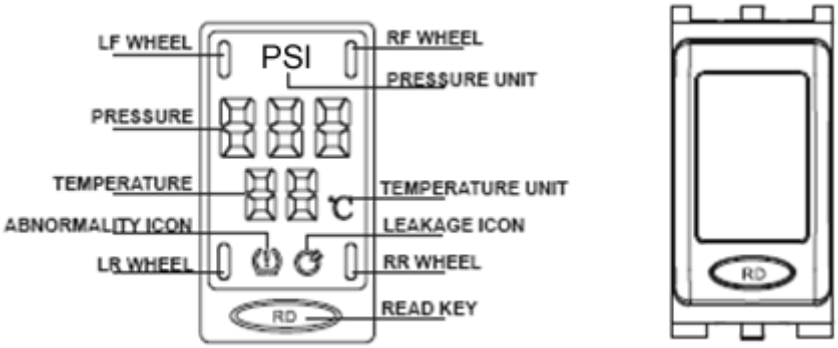
ATTENTION ⚠

This TPMS product is a proactive safety system. It cannot eliminate all possibilities of tyre related accident or prevent such accidents from happening. What the system can do is advise the driver of an abnormal tyre conditions enabling the driver to address the problem before the condition of the tyre reaches an unsafe level.

It is imperative that when an alert is given, that the driver addresses the problem by pulling over as soon as it is safe to do so and ascertain the cause of the alert.

4. Key Functions and Operation

4.1. Display Interface



"RD" function button

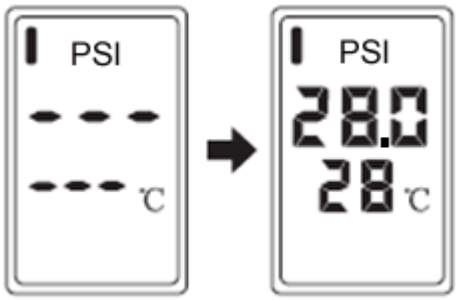
A. Under normal operating tyre conditions, the display circulates every 3 seconds displaying the data for each individual tyre. By pressing the "RD" button the display will toggle over to the next tyre enabling the user to scroll to the readings for a particular tyre quickly.

B. When the system detects a problem and sounds an alert, pressing the "RD" button turns off the audible alert. If the problem is not rectified within 20 minutes the alert will sound again. Turning the accessory power to the unit off and on again will reset the alert beeper.

4.2. Operating modes

A. Normal Condition

Under normal tyre conditions, the tyre pressure and temperature for each tyre is displayed, in a 3 second rotational sequence. The icons at the 4 corners of the display reflect the particular tyre whose data is being displayed. When the system is first installed and setup, the display will show "---" indicating no data has been received from the tyre sensor/transmitter as yet.



B. High Pressure Warning

When the pressure of a tyre becomes greater than 46.6psi, a high pressure warning will be triggered

- The digits displaying the tyre pressure will flash
- The icon indicating the tyre with the problem will illuminate
- The abnormal tyre condition icon will illuminate
- The system will emit warning beeps.

The high pressure warning mode will remain active until the problem is corrected.

High pressure warning
for the left front tyre

ATTENTION ⚠

Excessive high tyre pressure is a dangerous condition which can lead to sudden depressurisation of the tyre, normally referred to as a "BLOWOUT". When this happens control of the vehicle will be impaired including the ability of the vehicle to steer and brake, creating a potentially catastrophic condition. As such it is imperative that any vehicle should not be driven with excessively over inflated tyres. If the system detects this condition, the driver should pull over as soon as it is safe to do so and rectify the problem (usually by letting some of the air out of the tyre).

C. Low Pressure Warning

When the pressure of a tyre drops below 23.2psi) a low pressure warning will be triggered.

- The digits displaying the tyre pressure will flash
- The icon indicating the tyre with the problem will illuminate
- The abnormal tyre condition icon will illuminate
- The system will emit warning beeps.

The Low pressure warning mode will remain active until the problem is corrected.

Low pressure warning
for the left front tyre

D. High Temperature Warning

When the temperature of a tyre rises higher than 80℃, a high temperature warning will be triggered

- The digits displaying the temperature will flash
- The icon indicating the tyre with the problem will illuminate
- The abnormal tyre condition icon will illuminate
- The system will emit warning beeps.

The high temperature warning mode will remain active until the problem is corrected.

High temperature warning
for the left front tyre

ATTENTION ⚠

When the system indicates a high tyre temperature warning, do not try cool the tyre with cold water. Pull over and allow the tyre to cool down slowly. Excessive high temperature can cause a tyre blowout, so pull over as soon as it safe to do so and allow the tyre to cool down.

E. Rapid Leakage Warning

When a tyre starts to deflate quickly, the system will detect the rapid pressure drop and trigger a fast leakage warning.

- The digits displaying the tyre pressure will flash
- The icon indicating the tyre with the problem will illuminate
- The icon indicating a rapid leak will illuminate
- The system will emit warning beeps.

Rapid leakage warning for
the left front tyre

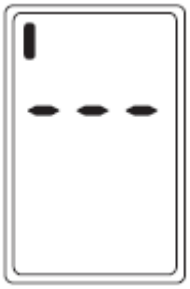
F. No ID Module Warning

The ID modules installed in the main unit are used to record and identify the ID code of the transmitters. When receiving data from the transmitters, the receiver will carry out a self check. If a problem is detected with one of the ID module the system will display a warning. Please see to the following image.

No ID module warning for
the left front tyre

G. Transmitter Failure Warning

If the receiver does not receive a valid transmission from a specific sensor/transmitter for more than 20 minutes the system will assume a problem with the transmitter and display “---”. The location icon will light to indicate which transmitter has a problem.



Sensor/Transmitter failure warning
for left front tyre sensor

H. Receiver Failure Warning

If the display does not receive any transmission from any sensor/transmitter for more than 3 minutes, the display will indicate a receiver failure warning and show “Err”.

Receiver Failure Warning

ATTENTION ⚠

In the event of any of the above system failure error messages we strongly recommend you take your vehicle to the nearest dealer as soon as possible to have the problem identified and rectified. Under these conditions the system will no longer be able to monitor one or all of the tyres.

I. Multiple problem detection on one Tyre

If both pressure and temperature warning are triggered on the same tyre the system will indicate the problem as follows

- The digits displaying the tyre pressure and temperature will flash
- The icon indicating the tyre with the problem will illuminate
- The icon indicating a rapid leak will illuminate
- The abnormal tyre condition icon will illuminate
- The system will emit warning beeps.

High pressure warning, high temperature warning and quick leakage warning appear at same time for the left front tyre.

J. Multiple tyre warning

In the event that multiple tyres are detected with a problem, the system will rotate the display data from one tyre to the next. The ‘RD” button can be used to manually scroll the display to the next faulty tyre.

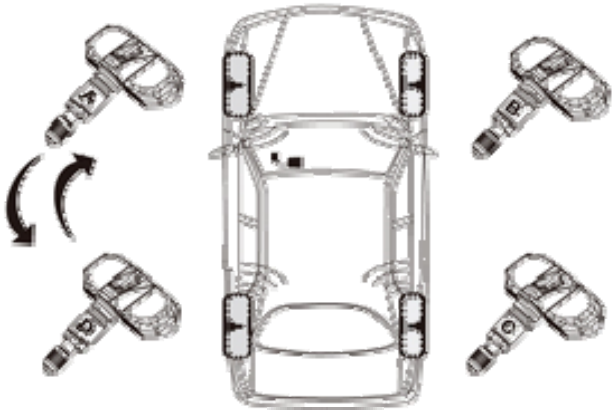
The display will continue to display the warnings until all fault conditions are corrected.

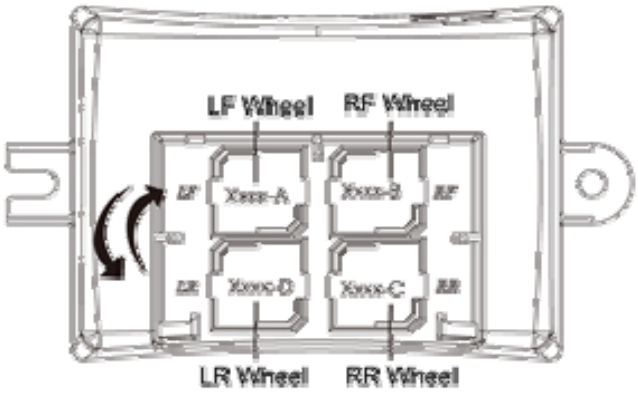
5. Replacing Sensor/Transmitters

If the sensor/transmitter or ID module become faulty, both need to be replaced as they are a matched set. First replace the faulty sensor/transmitter located inside the rim with a new one, and then replace the ID module supplied with the new sensor/transmitter. The ID module plugs into the receiver module assembly mounted behind the dash. Start your vehicle and drive it for a few minutes to activate the sensor/transmitter from its shipping sleep mode.

6. Tyre Rotation

When tyres are rotated on the vehicle, the sensor ID modules also need to be rotated, in order to update the system with the new tyre (and hence sensor/transmitter) locations. The ID modules are located inside the receiver module. First turn the Acc power off, by turning the ignition key to the off position. Remove the plastic cover on the receiver module enclosure to expose the ID module. Next simply unplug the modules and plug them into the new location corresponding to the location of the tyre. Each ID module is labelled "A", B" "C" and "D". The corresponding sensor/transmitter has the same marking on the valve stem body.





7. Trouble Shootings

Problem	Possible Reason	Solution
Display shows "---" when driving	ID module is not properly connected with the receiver	Turn ACC power off. Pull out the ID module and plug it again.
	The display is not receiving a signal	The transmitter has failed. Please contact your nearest Inawise Dealer.
Display shows "---" when parking	External RF signal is blocking the signal from the sensor/transmitter	Turn off or disable the offending device
The display does not illuminate	Power failure	Check the power wire connections and restart the system
Display is blank	1. Improper connection of power wire	Check the power wire connections
	2. The temperature in the vehicle is over 70°C	Avoid parking the vehicle under strong sunlight during very hot days
Display does not update	System failure	Restart the system
The display shows incomprehensible codes	System failure	Restart the system

1. Occasionally when parked the system may display “---” on the screen when the vehicle is first started. This might be caused by surrounding RF interference. This is not a fault condition, the display will update as soon as you move the vehicle away from the RF interference source.

2. Do not park the vehicle under strong sunlight. The LCD screen may suffer permanent damage if exposed to temperatures exceeding 70°C (158°F) for a period exceeding 1 hour.

ATTENTION ⚠

When the system is powered up for the very first time, the display will show “—“ while it is waiting for the first reception from the transmitters. The sensor/transmitters are shipped in a sleep mode in order to ensure maximum battery life. The sensor/transmitters only activate out of this shipping sleep mode when they are put into a pressurised environment and subject to mechanical movement, as would be the case when they are fitted to the rim of a vehicle and then rotated.

8. Specifications

Models

TPMS-222: Pressure displayed in PSI (pounds per square inch) and temperature in °C (Celsius)

Sensor

Weight: 36g (1.26 oz.)
Dimensions:1.5x2.8x6.4 (0.59x2.50x1.11 inch)
Pressure Monitoring Range: 0Psi ~ 51Psi
Operating Temperature Range: -40°C to 125°C
Temperature Monitoring Range: -40°C to 99°C
Operating Humidity Range: 45%~98%
Pressure Accuracy: ±0.73 PSI (at 0°C ~50°C)
Temperature Accuracy: ± 2°C
Battery Life: 5years at 20 hours driving per day
Frequency: 433.92MHz

Display

Power Consumption: 130 mW (Regular); 230mW (Max)
Power Supply: DC 12 Volt Nominal
Operating Temperature Range: -20°C to 70°C
Operating Humidity Range: 45%~75%
Pressure Resolution: ±0.2PSI)
Temperature Resolution: 1°C

Receiver

Operating Temperature Range: -20°C to 70°C
Operating Humidity Range: 45%~75%

Working Voltage Range

Component	Standard Voltage	Working Voltage Range		Power Supply
		Vmin	Vmax	
Receiver	12v	7v	16v	ACC
Display	12v	7v	16v	ACC
Transmitter	3v	2.1v	3.6v	Lithium battery

9. Warranty

The warranty provided with the product covers substantial manufacturer's defects in workmanship and materials. It does not cover any unit that is damaged beyond normal usage, was not properly installed, was subject to chemical contact, or other acts not sanctioned by this User Manual.
All components are covered for one(1) year and unlimited mileage following the date of installation.
The warranty will be honoured by any authorised Inawise Dealer. The owner is required to provide dated proof of the purchase. The authorised dealer will determine if there is a warrantable condition associated with materials and/or manufacturing workmanship. If a warrantable condition exists, the component will be replaced free of charge and shipping prepaid. The owner is responsible for all labor and installation charges.
The warranty does not include any further obligation whatsoever, including but not limited to actual installation of the replacement unit on the customer's vehicle.
All other Warranties, express or implied, are disclaimed. All collateral agreements, which purport to modify this limited warranty, are of no effect. The absolute limit of liability is the purchase price of the unit. Inawise Pty Ltd or the manufacturer; Shanghai Baolong Automotive Corporation is not liable for any direct, consequential, indirect or punitive damages of any kind.

10. Safety Warning

This product is designed to monitor vehicle tyre pressures and temperatures, it is not designed to provide warnings of sudden catastrophic tyre failure (blowouts) caused by external influences. The driver should always react promptly to warnings. The driver should not assume that because the TPMS system has not reported any problems, that no problems with the tyres or the vehicle exist.
This product is a proactive safety system. It cannot eliminate accidents caused by tyre failure, but it does give alert to drivers about abnormal and possibly dangerous tyre conditions.
Whenever the system alerts to a problem, pull the vehicle over as soon as it is safe to do so and ascertain the cause of the alert. Depending on the type of tyres fitted to your vehicle, in many cases, low tyre pressure cannot be determined by simply visually inspecting the tyre. If the system alerts to a low tyre pressure, in all probability, it is because the tyre pressure is dangerously low even though the tyre may look fine.
Tyres can fail for other reasons besides low pressure, overheating or overloading. Always be on the alert for other tyre related problems indicated by unusual noises, vibrations, uneven tread wear, or bulges on the tyre! If any of these signs are detected, have the tyres checked immediately by a professional!