KUENDER

Tire Pressure Monitoring System

User's Manual

Version 3.0e

Table of Contents

Tire Pressure Monitoring System, TPMS

TPMS enables a driver to be aware of tire pressure and battery condition of each tire through the receiver monitor. Whenever the tire state is abnormal, the receiver will generate warning signal and alarm automatically to warn the driver about the abnormality state so as to do timely handling and avoid accident effectively so that a drive can handle the situation timely and accident can be avoided effective.

The fundamental theory of Tire Pressure Monitoring System is to send the signal by wireless emission system after the sensor installed inside the tire measures the internal state of tire. The tire information sent by sensor is displayed in the monitor the real-time monitoring and measuring is undergone during the driving.

Notices

FCC Notice

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications are not expressly approved by the manufacturer could void the user's authority to operate the equipment.

System Alarm

- Low Tire Pressure Warning (when tire pressure is less than 20 psi)
- High Tire Pressure Warning (when tire pressure is higher than 40 psi)
- Low Battery Power Warning (when battery power is relative low)

Caution: Please slow down and stop the car in a safe place to check whether the tire is in abnormal condition whenever the system generates abnormal state warning.

System Usage Notices:

- This system can help effectively to monitor the tire condition but cannot prevent accident occurrences; the user shall ensure the normal condition of tire in the driving with the help of this system and avoid using low-quality or worn-out tire.
- Please do not dismantle the cover or any parts so that the system is kept away from any damage.
- Chemicals (such as leak-proof glue etc.) in the tire will damage the sensor; therefore, the manufacturer will not guarantee the system operation on such condition.
- The driver dose not need to read the information by operation control key since the system provides automatically monitoring function in case of distracting driving attention.

The Specifications of Kuender TPMS

Sensor Specifications:

Measurable Pressure Range	0 psi ~ 70 psi
Pressure Accuracy	+/- 1 psi (- 10℃ ~ 80℃)
Temperature Accuracy	+/- 2 ℃ (- 10℃ ~ 80℃)
Operating Temperature	- 40℃ ~ 125℃
Modulation Mode	FSK
Operating Frequency	433.92 MHz
Output Power	5 dBm
Battery Voltage	3.6 V
Battery Life	> 5 years
Weight	< 30 g (w/o air valve)
Dimensions (mm)	52 x 42.6 x 18

Receiver Specifications:

System Power Supply	DC 12 V (car cigarette lighter)
Operation Temperature	- 40℃ ~ 70℃
Dimensions (mm)	70 x 40 x 22

System Installation

This system is divided into two parts that need to be installed respectively:

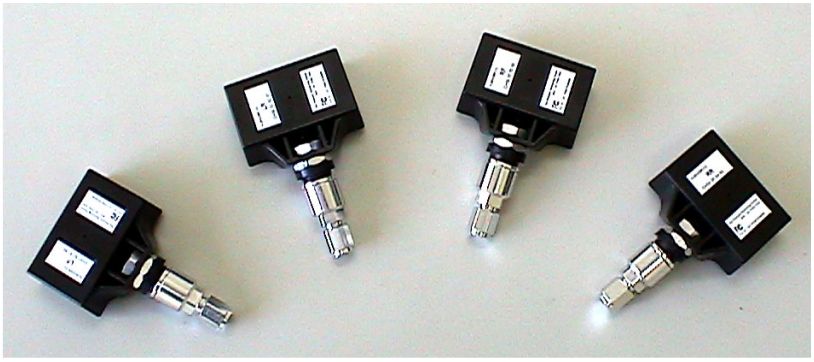
1. Install the receiver in the car.
2. Install the sensor in the tire.

To install first the receiver in the car is recommended, and then install the sensor.

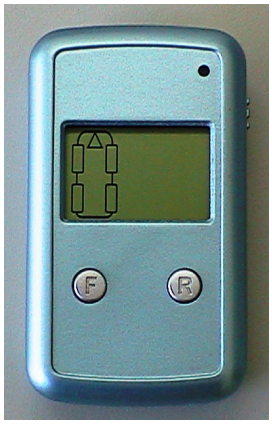
Contents

The package of Tire Pressure Monitoring System include the following items:

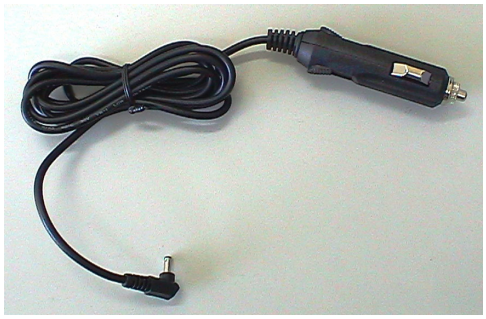
NO.	Name	Quantity
1	Sensor	4
2	Receiver	1
3	Car Cigar-lighter Power Wire	1



Sensor



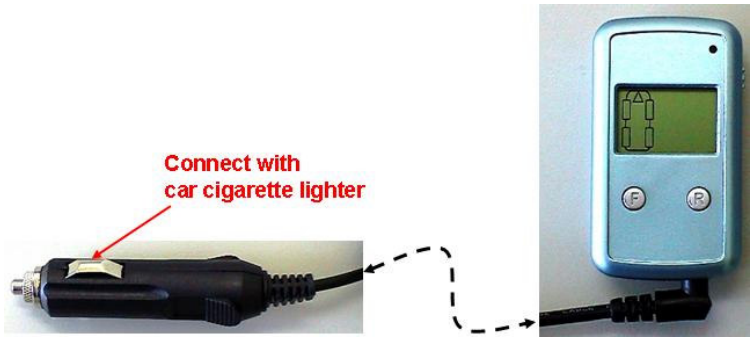
Receiver



Car Cigar-lighter Power Wire

Receiver Installation

Car power supply is applied for this receiver. One end of direct car power wire is connected with receiver socket. When inserting the other end of car power wire into the car cigarette lighter, the receiver will be in detection state by starting automatically.

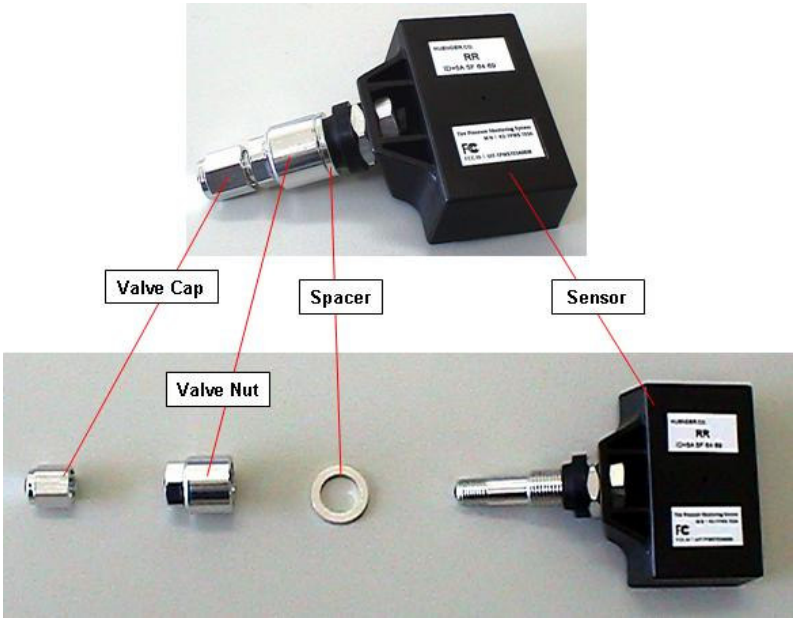


Sensor Installation

(Suggest that sensor installation shall be performed by professional car factory or technician !)**

A. Raise the car by lifting machine or jack;
B. Take off the tire from the car and deflate the air inside. Peel off tire from tire frame.
C. Remove the original air valve from the tire frame.
D. Find out the corresponding sensor for this tire position (sensor label specifies the corresponding tire position).Then dismantle the valve accessories. (valve cap, valve nut, spacer)
E. Install sensor air valve on the tire frame to replace the original one with label face outwards.
F. Move back the spacer and valve nut in sequence (locking torsion of valve nut is 30~50 kgf-cm or 3~5 N-m). Fix the sensor in the tire frame.
G. Move back the tire. (Pay attention to the partial press of tire cover or sensor damage when perform installation) Then perform tire inflation according to standard tire pressure.
H. Move back the valve cap after inflation is concluded and perform tire dynamic balance. Finally, install back the tire in the car.
I. Repeat step B to H. Install other sensors in the corresponding tires until the full installation.

Picture of corresponding tire position for sensor



Picture of the valve accessories

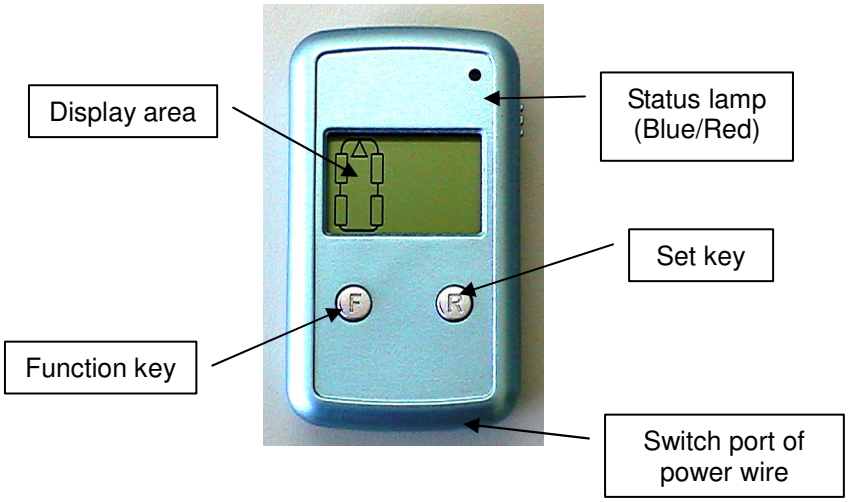

Picture of sensor installation

Picture of sensor installation completion

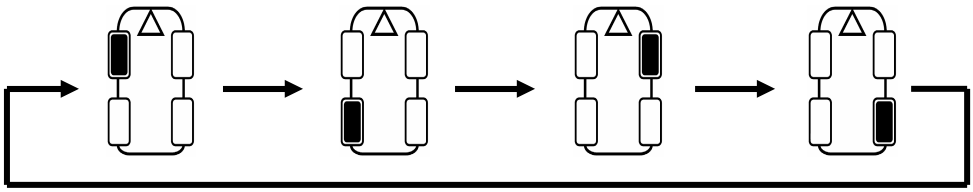
Attention: keep away from sensor position when performing tire installation and dismantling in case of sensor damage.

Interface Instruction of Receiver

Instructions for panel and key:



Automatic polling sequence:

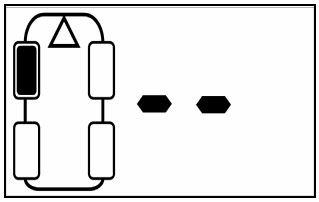


LF (Left Front) **LR** (Left Rear) **RF** (Right Front) **RR** (Right Rear)

Startup State

The receiver will restart automatically and be in receiving state as soon as the car power startup. (System restart will erase the former state value automatically and no value will be displayed until the coming of new data.)

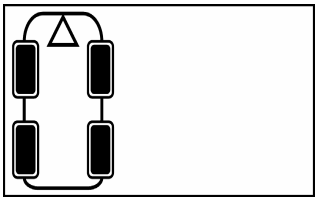
Before receiving the new data, the system will perform automatic polling for tire position whose data have not been received and skip those whose in normal state have been received. Automatic polling continues until all the tire states are received.



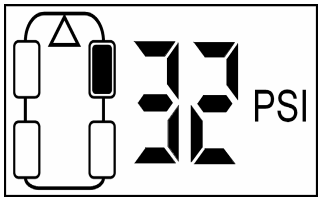
Automatic polling for the tire positions whose data have not been received

Normal State

The monitor will display all the tire positions if every tire state is received and every of them is in normal state after startup. At that time, the status lamp turns blue for the user to judge conveniently whether the system is in normal state. (To press the function key Ⓕ can start polling function for inspecting the pressure of each tire.)



All the tires are in normal state

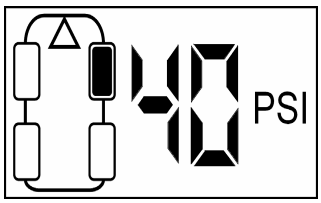


Query state of tire pressure value

Abnormal Tire Pressure

When tire pressure is abnormal, the system will perform automatic transfer and display the tire position and abnormal pressure value. At the same time, the status lamp turns red and twinkles while the buzzer provides warning with beeps. When more than two tire pressures are abnormal, the system will display abnormal tire position and pressure valve by polling. Autoskip is for normal ones.

** When system is in warning state, press set key Ⓡ to shut down warning tone.

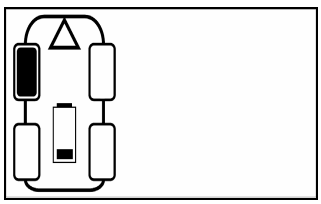


Pressure of right front tire is abnormal with 40psi

Low Battery Power of Tire Sensor

When low battery power of tire sensor is detected, the system will perform automatic transfer and display the tire position and state of low power. At the same time, the status lamp turns red and twinkles while the buzzer provides warning with beeps. When more than two tire sensors in low power are detected, the system will display tire position of low power by polling. Autoskip is for normal ones.

** When system is in warning state, press set key Ⓡ to shut down warning tone and warning lamp signal.



Left front tire sensor of insufficient power

Appendix

Unit references:
1 psi = 0.07 bar
1 bar = 14.286 psi

Variation value of tire pressure:
The slight variation of tire pressure resulted from some external factors during the driving is normal. Generally speaking, variation scope shall be within 3 ~ 2 psi according to standard tire pressure of 32 psi. Hence, variation of 29 psi ~ 35 psi is normal during the driving.

Sensor Replacement:
The sensor in this system has a five-year guarantee. Contact the agent in case of any replacement requirement.

Tire usage information:
The key point for tire use is to keep the accurate tire pressure all the time. Only in this way can we benefit from tire service-life extension and no accidents. Additionally, do not perform deflation while the tire is hot or recycle the tire for remaking or tires of different types installed in the same axle. Pay attention to the aspects mentioned above, it is possible to guarantee the safety of tire and car.