

# **TPMS**

# **USER MANUAL**

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## **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

## 1. INTRODUCTION OF TPMS

TPMS is the shortened form of tyre pressure monitoring system. TPMS is the active safety system of vehicle. It is used for real-time monitoring tyre pressure and tyre temperature and transmitting the information of tyre to driver timely and accurately. TPMS can reduce the risk of tyre blowing and damaging resulted from low pressure, high pressure, and high temperature and leaking. Thus protect effectively the life and property of drivers and passengers.

TPMS display can be installed directly in air-conditioning vent in cab. It can be also installed in other suitable position through mushroom stick. The four sensors are installed inside tyre respectively.

When the vehicle starts and its speed is higher than 20km/h, the sensors installed inside tyre can real time collect the tyre pressure, tyre temperature and so on. Then the information is transmitted by radio to TPMS display. TPMS display displays corresponding information after it receives the wireless signal and alarms when the tyre is abnormal.

## 2. BILL OF TPMS ASSEMBLY

Serial number	name	Amount	Unit
1	Tyre pressure sensor	4	PCS
2	Tyre pressure monitoring display	1	PCS
3	Power supply wiring harness	1	PCS
4	Clip	1	PCS
5	Mushroom stick	1	PCS

### 3. TPMS PRODUCT SPECIFICATION

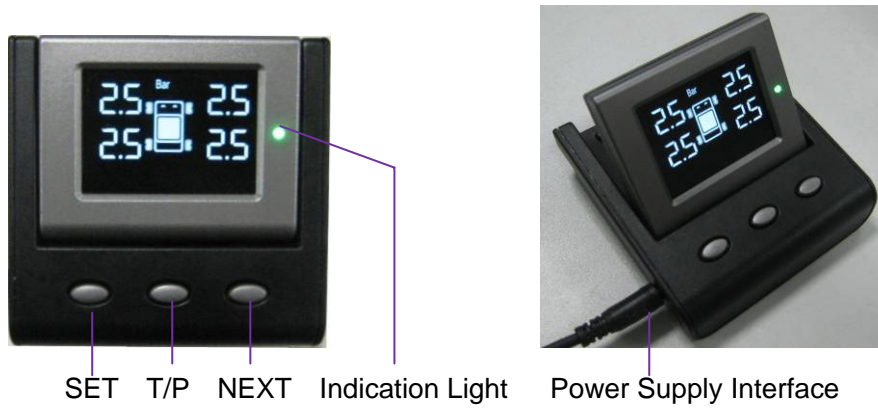


Fig 1 TPMS Display



Fig 2 TPMS Sensor

#### **Indicator light introduction**

- ① Green: State indication that shows the system is normal and has no alarm information;
- ② Red: Alarm indication that shows alarm information exists in the system.

### **Key introduction:**

- ① “SET” is the key used for setting. The tyre interchange can be done with this key. The particular operation is as the following paragraph 6: **Tyre Interchange Setting Specification.**
- ② “T/P” is the key used for switching the display value of temperature and pressure. Through pressing this key, the value of tyre temperature and tyre pressure on the display can be switched.  
  
The tyre ID can be shown on the display after that “T/P” is pressed for 4s. Then press “NEXT”, we can inquire the ID of different tyre. The display of tyre ID can exit through pressing “SET”.
- ③ “NEXT” is the key that after you press the key for 4s, TPMS comes into matching mode. In this mode, the sensors can be changed by users. Press “NEXT” again, the matching mode can exit.

### **Warm Reminders:**

When install the TPMS display, don't install it above air-bag without fail for fear of additional injury to drivers and passengers when the air-bag opens under emergency conditions.

If you need to change the sensors, please go to designated 4S shop or vehicle repair garage to do the matching using special tool by career man.

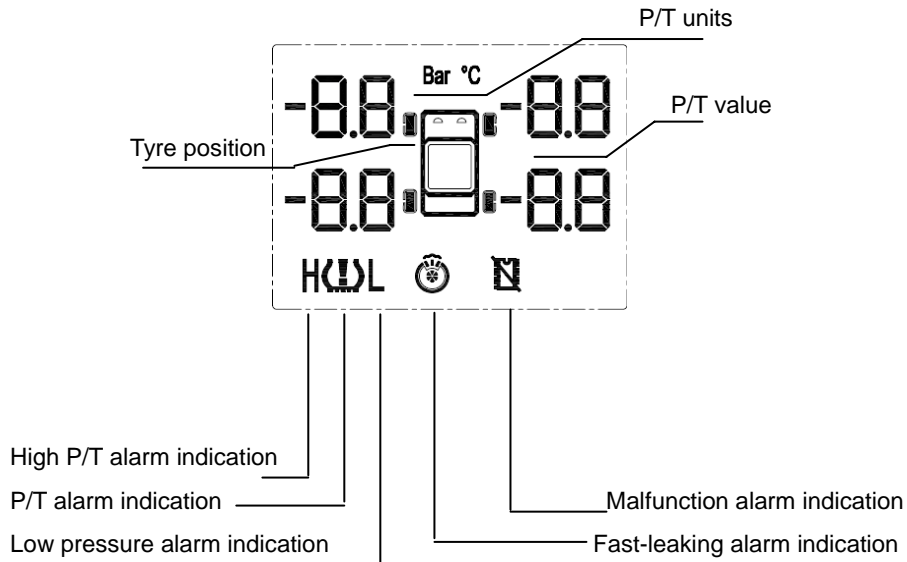
If your hub is steel and you need to change the tyre, please change tyre together with valve of tyre pressure sensor.

All the figures in the introduction are only the sketch map. Please refer to the real object.

#### 4. DISPLAY INTERFACE INTRODUCTION

TPMS display is electrified when the vehicle key is switched to “ON”. The display shows the value of temperature and pressure recorded last time as the following figure 3.

After the vehicle starts and its speed is higher than 20km/h, every date shown in figure 3 updates real time to up to date status.



Annotate:

P—pressure, T—temperature. As to pressure unit: 1bar= $10^5$ Pa (equal approximately to 1 standard atmospheric pressure)

Fig3 TPMS display interface introduction

#### Warm Reminders:

Only upon the condition that the vehicle starts and the vehicle speed is higher than 20km/h, every date shown on TPMS display may updates real time to up to date status.

## 5. FUNCTION INTRODUCTION

TPMS display can show corresponding indication or alarm information according to different tyre status such as normal pressure, low pressure, high pressure, high temperature, fast leaking and so on. Each status is introduced in details below.

### 5.1 NORMAL DISPLAY OF TEMPERATURE AND PRESSURE

After the speed of vehicle is higher than 20km/h, TPMS display can show normally the temperature and pressure value of every tyre as shown in figure 4.

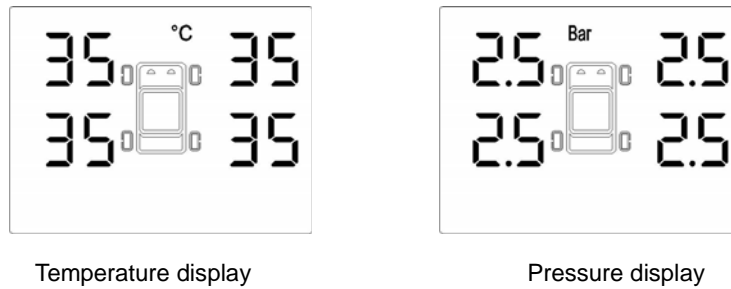


Fig 4 Normal temperature/pressure display sketch map

#### **Warm Reminders:**

In this manual, the value of temperature and pressure shown in display interface is schematic value. Tyre temperature and pressure value of your vehicle will display real time according to the specific actual conditions of your vehicle.



## 5.2 LOW PRESSURE ALARM

If the pressure of one or more tyre is lower than 75% of standard tyre pressure after the speed of vehicle is more than 20km/h, TPMS can alarm within 6s.

After TPMS sends alarm signal, the alarm sound lasts for 10 times and the red alarm indication is lighted. In addition, TPMS display shows the position of alarm tyre, pressure value and alarm indication.

The following figure 5 shows that the left front tyre pressure is low.



Fig 5 Low pressure alarm indication

The alarm sound can be stopped through pressing arbitrary key. But the alarm indication light is still red. The indication light switches automatically from red to green until the tyre pressure recovers normal.

## 5.3 HIGH PRESSURE ALARM

If the pressure of one or more tyre is higher than 125% of standard tyre pressure after the speed of vehicle is more than 20km/h, TPMS can alarm within 6s.

After TPMS sends alarm signal, the alarm sound lasts for 10 times and the red alarm indication is lighted. In addition, TPMS display shows the position of alarm tyre, pressure value and alarm indication.

The following figure 6 shows that the right front tyre pressure is high.

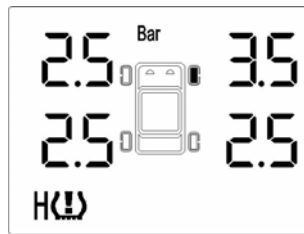


Fig 6 High pressure alarm indication

The alarm sound can be stopped through pressing arbitrary key. But the alarm indication light is still red. The indication light switches automatically from red to green until the tyre pressure recovers normal.

#### 5.4 FAST-LEAKING SETTING

If the leaking speed of one or more tyre is higher than 30kPa/min after the speed of vehicle is more than 20km/h, TPMS can alarm within 48s and point out the position of leaking tyre.

If the leaking speed of one or more tyre is higher than 5kPa/s after the speed of vehicle is more than 20km/h, TPMS can alarm within 8s.

After TPMS sends alarm signal, the alarm sound lasts for 10 times and the red alarm indication is lighted. In addition, TPMS display shows the position of alarm tyre, pressure value and alarm indication.

The following figure 7 shows that the left rear tyre is flat.

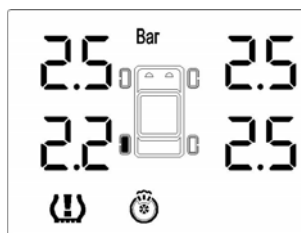


Fig 7 Fast-leaking alarm indication

The alarm sound can be stopped through pressing arbitrary key. But

the alarm indication light is still red. The indication light switches automatically from red to green until the tyre pressure recovers normal.

### 5.5 HIGH TEMPERATURE ALARM

If the temperature of one or more tyre is higher than 75°C after the speed of vehicle is more than 20km/h, TPMS can alarm within 30s and point out the position of high temperature tyre.

After TPMS sends alarm signal, the alarm sound lasts for 10 times and the red alarm indication is lighted. In addition, TPMS display shows the position of alarm tyre, temperature value and alarm indication.

The following figure 8 shows that the right rear tyre temperature is high.

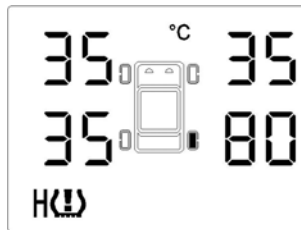


Fig 8 High temperature alarm indication

The alarm sound can be stopped through pressing arbitrary key. But the alarm indication light is still red. The indication light switches automatically from red to green until the tyre temperature recovers normal.

### 5.6 SENSOR MALFUNCTION ALARM

After the speed of vehicle is more than 20km/h, TPMS will send alarm signal within 10min and point the position of malfunction tyre pressure sensor if some sensor status don't display because of sensor malfunction, using up of battery capacity.

After TPMS sends alarm signal, the alarm sound lasts for 10 times

and the red alarm indication is lighted. In addition, TPMS display shows the position of malfunction tyre and the malfunction alarm indication.

The following figure 9 shows that the left front tyre is malfunction tyre.

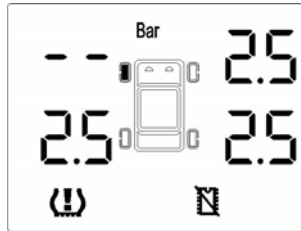


Fig 9 Sensor malfunction alarm indication

The alarm sound can be stopped through pressing arbitrary key. But the alarm indication light is still red. The indication light switches automatically from red to green until the communication between TPMS sensor and TPMS display recovers normal.

#### **Warm Reminders:**

For the sake of safety of yourself and your car, please stop the car quickly to make the check. Go to 4S shop or professional repair garage to do a careful examination at your convenience so as to avoid the malfunction thoroughly.

The information of sensor can be lost under bad weather or intense electromagnetic interference conditions.

## 6. TYRE INTERCHANGE SETTING INTRODUCTION

### 6.1 STANDARD TYRE PRESSURE SETTING

Standard tyre pressure default value of this TPMS is 2.5Bar. The standard tyre pressure may be different for different concrete vehicle type. Users should set the standard tyre pressure according to specific vehicle type. The setting of standard tyre pressure needs to use special matching tool. Users can go to specified 4S shop or vehicle repair garage to do the settings.

### 6.2 TYRE INTERCHANGE SETTING

The purpose of tyre Interchange setting is to interchange left, right, front, rear tyre. This function facilitated the regular service to tyre.

In order to avoid wrong operation, the setting methods and steps of TPMS to enter tyre interchange mode is as follows:

- ① Press “SET” without releasing. Then press “NEXT”. The two buttons is pressed together for 4s or more, then releases;
- ② Press “SET” again, the tyre interchange mode can exit.

The tyre needed to change can be selected through pressing “T/P” for several times according to the change of tyre position in the display.

**For example:** if the position of left rear tyre and right rear tyre position needs to change, the operation steps is as follows:

- ① Starting status as shown in figure 10;
- ② The tyre interchange setting mode enters according to operation steps mentioned above as shown in figure 11;
- ③ The left rear tyre and right rear tyre is changed through pressing “T/P” for several times according to the change of tyre position in the display as shown in figure 12;

- ④ Then press “SET” to make sure that the two tyres will interchange as shown in figure 13;
- ⑤ Finally press “SET” again, the tyre interchange is done. Then the display interface returns to starting status as shown in figure 10.

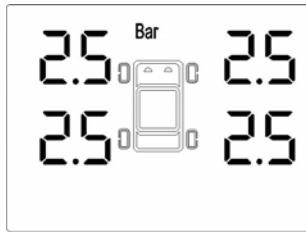


Fig 10

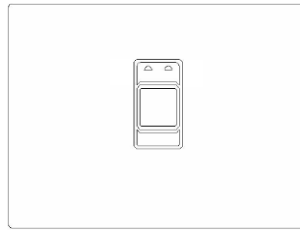


Fig 11

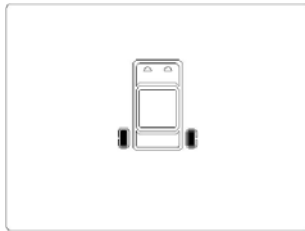


Fig 12



Fig 13

#### **Warm Reminders:**

- ① As for tyre interchange, please operate without fail according to above steps. Otherwise the false operation may happen. This can lead to wrong sensor installation position. Accordingly lead to the data inaccuracy or malfunction alarm.
- ② After the tyre interchange, please go to specified 4S shop or vehicle repair garage to make the inspection using special tool to make sure that there is no mistake in changing.

## 7. TECHNOLOGY PARAMETERS

### 7.1 TPMS DISPLAY

Operating temperature:	-20°C~+70°C
Storage temperature:	-40°C~+95°C
Modulation format:	FSK
Communication frequency:	433.92MHz
Receiving sensitivity:	-105dBm
Operating voltage:	DC12V±3V

### 7.2 TPMS SENSOR

Operating temperature:	-40°C~+105°C
Storage temperature:	-40°C~+125°C
Pressure measurement range:	0~4.5Bar
Pressure measurement accuracy:	±0.1Bar
Modulation format:	FSK
Communication frequency:	433.92MHz
Emission frequency:	1dBm

8. ANNEX

**Annex 1: Guarantee card main couplet**

Please tear this page along broken line when purchasing and this page is reserved by supplier.

User datum	Name		Type	
	Vehicle license number		E-mail	
	Telephone		Address	
Product records	Type		Number	
	Sensor ID			
Vendition records	Supplier		Vendition date	
	Telephone		Address	
Installation records	Installation company		Address	
	Installation person		Installation date	



**Annex 2: Guarantee card assistant couplet**

Please fill out this couplet completely at the time of purchase and this couplet is preserved by users.

Product leaving factory records	Type		Number	
	Sensor ID	Left front		Right front
		Left rear		Right rear
Purchase records	Supplier		Telephone	
	Address			
Installation records	Installation company		Installation person	
	Installation address			



