



To ensure correct operation and service please read these instructions before installing and operating the TPMS

Orange TPMS MANUAL

TABLE OF CONTENTS

1. TIRE PRESSURE MONITORING SYSTEMS, TPMS	2
2. NOTICE	2
3. SPECIFICATIONS OF ORANGE TPMS.....	3
4. THE SYSTEM INSTALLATION	3
5. ACCESSORIES FOR ORANGE'S TIRE PRESSURE MONITORING SYSTEM.....	3
6. DISPLAY UNIT INSTALLATION	4
7. WIRELESS TRANSMITTER SENSOR INSTALLATION.....	5
8. THE SYSTEM OPERATION	7
9. SYSTEM ALARM	7
10. STATEMENT	7
11. SETUP METHOD.....	7
Low TIRE PRESSURE WARNING	8
HIGH TIRE PRESSURE WARNING	8
HIGH TIRE TEMPERATURE WARNING.....	9
12. RESET FOR TIRE CHANGES AND ROTATION	9
13. REPLACING THE TIRE PRESSURE SENSOR	11
14. APPENDIX.....	13
15. ANNEXES.....	13
16. WARRANTY POLICY	14

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Tire Pressure Monitoring Systems, TPMS

Orange's Tire Pressure Monitoring Systems (Orange TPMS) improves safety while driving. Once installed in your vehicle, the system will automatically monitor your tires in real-time for pressure and temperature. When any tire's pressure and/or temperature appear abnormal, the system will, in real-time, transmit signals to activate an alarm and show a digital figure to warn the driver of a problem. The system aids safety, can extend the tire life and help reduce fuel consumption.

NOTICE

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.

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 or more of the factoring 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

Caution: Any changes or modifications in construction of this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirements, this device and its antenna must not be co-located or operating to conjunction with any other antenna or transmitter.

System Scope of Use and Warnings

Tire Pressure Monitoring System, TPMS

This system is a sensing device designed to measure and display tire operation and / or activate an alert to the driver when pressure and temperature irregularities are detected. It is the responsibility of the driver to react promptly and with discretion to alerts. Abnormal tire inflation pressure should be corrected at the earliest opportunity.

Caution: the system is wireless RF product; therefore, it may not receive a signal due to the poor environment or incorrect operating or incorrect installation. When the system continually cannot receive any signal from any tire sensor more than 10 minutes since the system be switch on power for monitoring, the system will shown " " and turn on the RED abnormal tire LED light and alert sound. In this case, it may cause by a RF interference environment, a driver need to drive the vehicle and leave this place. If the display still cannot receive any correct signal from tire sensor, then, a driver need to find a nearby qualified tire maintain service for checking and maintain. It may cause by a tire sensor damages or battery power consumption. (Battery in normal condition can be used more than 8 year, but in abnormal condition, the tire sensor will continually send warning signal for driver, thus it wills consumption the battery quickly than normal prediction.)

System Installation and Usage

Use of the TPMS requires that qualified personnel according to the instructions here have properly installed it. This system is suitable for use on a passenger car, SUV and 4X4 tires, with up to maximum cold inflation pressure of 81 Psi (Guage) or 96psi (Absoulte), below instruction is Guage value mentioned.

Reacting to Alerts

When an alert or warning is received, reduce vehicle's speed and proceed to a safe location to stop where the tire can be inspected and /or serviced.

The low-pressure alert indicates that the air pressure has dropped to a selected minimum and a high-temperature alert indicates that the temperature of the tire content has surpassed the threshold value set.

Use of Chemicals

Temporary resealing or re-inflation products containing internal sealants or propellants in any tire assembly may adversely affect the operation of the sensor/transmitter.



Specifications of Orange TPMS

1. SENSOR AND TRANSMITTER SPECIFICATIONS

Battery life	More than 8 years, nominal.
Storage temperature	-40°C to 125°C
Operating temperature	-30°C to 105°C
Operating humidity	95%
Operating frequency	433MHz
Pressure monitoring range	0~81 psi for 4 tires of passenger cars (or 96 psia)
Pressure reading accuracy	At Normal condition ± 1psi at normal pressure range
Temperature reading accuracy	± 4°C in normal environmental condition
Transmission power	Max 5 dBm
Battery	3.6V
Sensor weight	35gm

2. RECEIVER SPECIFICATINS

Operating voltage	12V DC
Operating current	200mA
Monitored temperature range	-40°C to 125°C
Operating temperature	-40°C to 85°C

The System Installation

There are two parts of system installation

1. Setting up the display unit in the vehicle
2. Installing the transmitter unit sensor in each tire.

We strongly suggest installing the display unit first, and then install the tire transmitters.

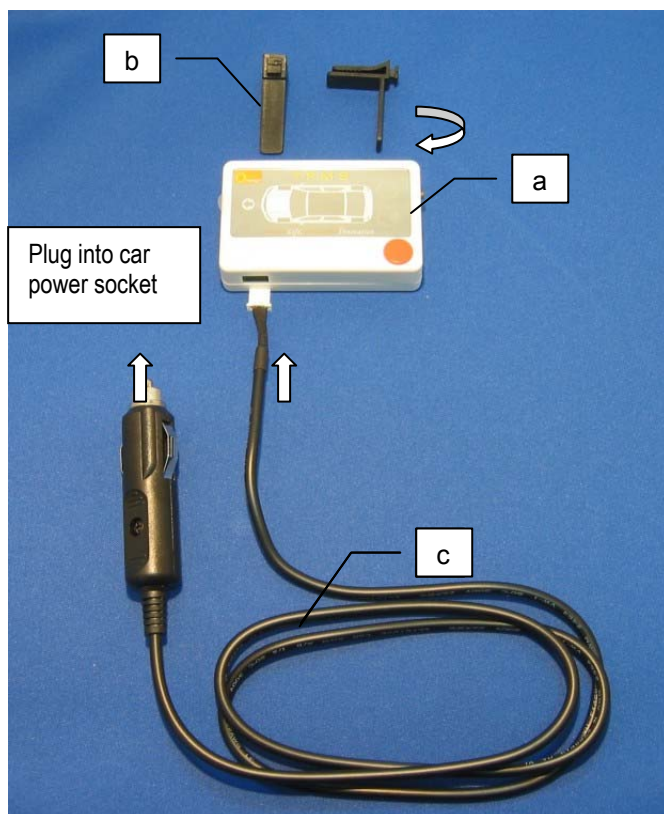
Accessories for Orange's Tire Pressure Monitoring System

NO.	Accessory Name	Quantity
A	Wireless Receiver and Display Unit	1
B	Holder for Display in Air Conditioner Unit	2
C	Power Connection for Cigarette Lighter	1
D	Wireless Transmitter Sensor (Remote Sensing Module)	4
E	Tire Valves	4
F	Screw for Tire Valves (Nylok screw)	4
G	Manual	1

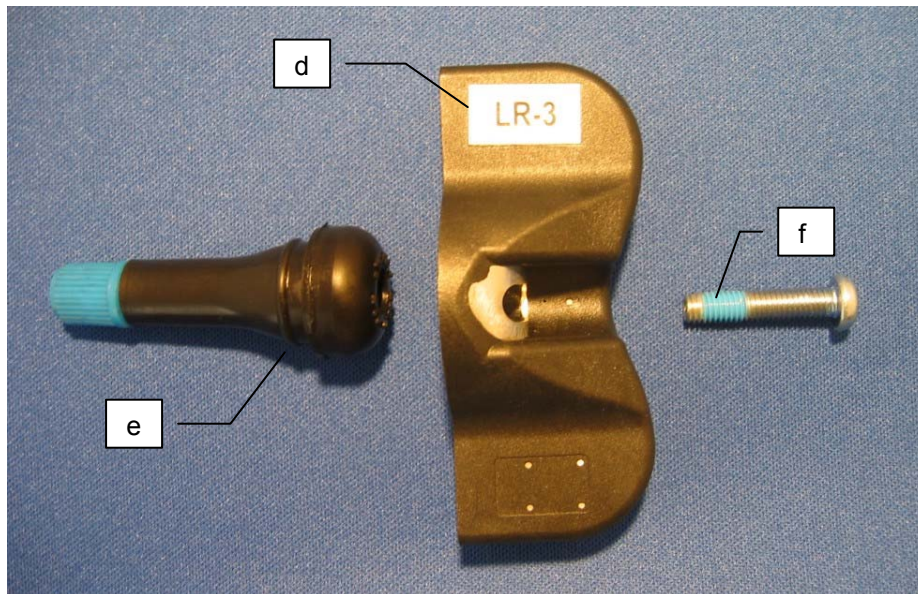


Display Unit Installation

- A. Plug in one side of ③ the power cable connection into ① the display located on the bottom.
- B. Install the display unit in front of driver at an appropriate position. Take the two clips ② to fasten into the bottom of the display unit ①, and clip the unit into the air-condition vent or other convenient place.
- C. Connect the power cable ③ into the vehicle's cigarette lighter socket for power connection.



Wireless Transmitter Sensor Installation



Step	Operation Process	Photograph
A	Use a jack to raise the vehicle and place jack stands underneath the vehicle for safety. Refer to vehicle owner's manual for full service advice. Seek the assistance of a qualified motor mechanic if required.	
B	Take off the tires and bleed the air. Then take off the air valve of the tire from the wheel. (NOTE: You must change the valve to Orange's valve) . This part of the process will normally require the service of a tire fitting service or mechanic.	
C	Recognize the number on each sensor (d) with position of tire on the vehicle. (VERY IMPORTANT) a. RF - 1 = Right Front, No. 1 b. RR - 2 = Right Rear, No. 2 c. LR - 3 = Left Rear, No. 3 d. LF - 4 = Left Front, No. 4	
D	Set up the new TPMS special valve (e) in the wheel.	
E	Use the new TPMS special Nylok screw (f) to tighten the transmitter sensor into the valve on the wheel.	



		
F	Adjust the transmitter sensor angle so that the transmitter fits tightly on the wheel and then tighten the screw for the transmitter's sensor so that it is fixed on the wheel.	
G	Clean inside the tire to prevent the tire from damaging the transmitter sensor.	
H	Inflate the tires. Balance the tire a. Balance tires using a balance machine b. A lead tire weight may need to be added for balancing. c. Balance until the tire balance shows balance as "OK" The Steps above will require the assistance of a tire fitting service or a mechanic. It is important that the wheels are balanced after the fitting of the TPMS sensors in order to ensure the safe operation of the tire when refitted to the vehicle.	  
I	Set up the other three tires in the same manner.	 
J	Turn the ignition key of the vehicle until the power is activated on the cigar lighter, this may be first or second position depending on the car manufacturer. The in-car display will be activated. The function button of the display unit (the orange button) can be switched to pressure and temperature depending on the customer's need.	



The System Operation

Once installed the system will automatically monitor the tires when power is applied. When the power of the vehicle is switched on, the display unit will show, in real-time, the pressure and temperature and follow the sequence from No. 1 to No. 4 for showing all the tires respectively.

System Alarm

When the system detects any unusual pressure from tires, the display unit will light  and turn **red** and show the tire pressure on the display unit.

When the system detects any unusual temperature from the tires, the display unit will light  and turn **red** and show the temperature in the display unit.

Statement

The alarm will continue to sound until the abnormality is solved. If more than two abnormalities in the tires happen at the same time, the system will flash between each problem every 2-3 seconds. No other light will show.

If the temperature is too high and pressure too low simultaneously, the system will show the pressure too low signal first and then show the temperature too high signal. (The abnormal signal of the display is shown priority sequence as in the following description.

Press the Set-up key (brown) for over 3 seconds to enter into the setup up mode. If you do not want to change the figure, then just press the setup key 3 times, and return to operating mode. At this moment the system will clear all the alarm signal light. If the abnormal condition continues, the display will sound the abnormal alarm and display the faults again. Even when the car is parked and not in use, the system will continually monitor the tires, when driver starts the vehicle, the display unit will show the previous tire pressure or temperature.

Setup Method





The driver can follow the steps to adjust the system of pre-loaded values

(Notice: the system has been pre-set with alert figures. If the driver wants to change the figure, then follow the professional tire technician's instruction).

Low Tire Pressure Warning

Step	Operation process	Photograph
1	Pressing the setup key (the brown button) on the right side of the display unit for over 3 seconds can change to the low pressure set up mode.	
2	The first shown figure is the preset that shows the low pressure warning (the display will light up the No. 3 and No. 4 tire red lights, "PSI" and pre-loaded low pressure figure LED red light).	
3	Press the front side function key (the orange button) to change the lower pressure figure, which the system uses to warn the driver when the tire pressure deflates to that figure.	
4	The low pressure figure set up range is from 18psi to 35psi, the driver can continually push the function key (the orange button) to adjust the appropriate low pressure figure; the preloaded figure is 26psi.	
5	Push the setup key (the brown button) to complete the low pressure setting operation.	

High Tire Pressure Warning

Step	Operation process	Photograph
1	After setting up the low pressure figure, press the setup key again (the brown button) on the right side of the display unit. The unit will display the high pressure set up mode.	
2	The first shown figure is the preset that shows the high pressure warning (the display will light up No. 1 and No. 2 tire red lights, "PSI" and preloaded high pressure figure LED red light).	
3	Press the front side function key (the orange button) to change the high pressure figure, which the system uses to warn the driver when the tire pressures deflates to that figure.	
4	The high pressure figure set up range is from 40psi to 60psi, the driver can continually push the function key (the orange button) to adjust the appropriate low pressure figure; the preloaded figure is 50 psi.	
5	Push the setup key (the brown button) to complete the low pressure setting operation.	



High Tire Temperature Warning

Step	Operation process	Photograph
1	After setting up the high pressure, press the setup key again (the brown button) on the right side of the display. The unit will display the high temperature setup mode.	
2	The first shown figure is the preset that shows the high temperature warning (the display will light on the No. 1, No. 2, No.3 and No.4 red tire lights, "°C" and preload high temperature figure LED light).	
3	Press the front side function key (the orange button) to change the high temperature figure, which the system uses to warn the driver when the tire temperature rises to that figure.	
4	The high temperature figure set up range is from 60°C to 99°C, the driver can continually push the function key (the orange button) to adjust the appropriate high temperature figure; the preloaded figure is 80°C.	
5	Push the setup key (the brown button) to complete the high temperature setting operation.	

1. Turing off the power can also turn off the alarm operation.

Reset for Tire Changes and Rotation

Tire rotation is necessary to prolong the life of your tires. The system requires resetting the tire position to ensure the transmitter sensor can indicate the right position of your tires on display unit.

Orange TPMS already equips the **AUTO LOCATION** function. This allows the driver to easily change the vehicles tire(s). The process for changing tires and rotating tires is below.

The steps of reset as follow:

Step	Operation process	Photograph
1	Bleed the all tires from the valve stem until the pressure is lower than 18psi . The red LED light will show when the pressure is below 18psi.	
2	Please push and hold the setup key (brown button) and function key (orange button) simultaneously for three seconds. The system will be forced into the tire-repositioning mode.	
3	Change the tire(s) position	



4	The display will light RED for No.1 tire (Right Front) and wait to re-inflate the tire. (Must be slowly inflated higher than 22psi).	
5	Inflate the Right Front tire until the appropriate pressure is reached and wait for the display to turn green on the No. 1 tire and the No. 2 tire to turn RED . (If the display does not show the green light, please deflate the pressure, and re-inflate pressure slowly again.)	
6	Inflate the Right Rear tire until the appropriate pressure is reached and wait for the display to turn green on the No. 2 tire and the No. 3 tire to turn RED . (If the display does not show the green light, please deflate the pressure, and re-inflate pressure slowly again.)	
7	Inflate the Left Rear tire until the appropriate pressure is reached and wait for the display to turn green on the No. 3 tire and the No. 4 tire to turn RED . (If the display does not show the green light, please deflate the pressure, and re-inflate pressure slowly again.)	
8	Inflate the Left Front tire until the appropriate pressure is reached and wait for the display to turn green on the No.4 tire. The system will then start to detect the sensors. (If the display does not show the green light, please deflate the pressure, and re-inflate pressure slowly again.)	

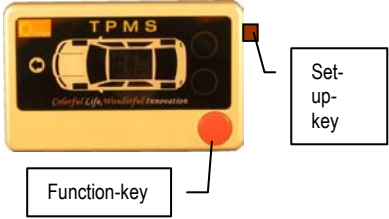
Warming

1. **Do not turn off the vehicles power during this process. Doing so will immediately interrupt the repositioning setup process. The ignition can either be in the on or start position.**
2. **After repositioning, check the display is detecting all tire pressures correctly. If the system cannot work normally, please reset it and follow the instructions again.**



Replacing the Tire Pressure Sensor

This section describes what to do when one or more tire sensors are broken or the battery is drained. This procedure is similar to the tire repositioning process

Step	Operation process	Photograph
1	Take off the broken tire sensor from the tire and install a new Orange replacement sensor. Notice: Other brands cannot be used.	
2	First access the replacement part mode. Press and hold the setup key (the brown button), within 3 seconds simultaneously push the function key (the orange button). Both buttons should be pushed and held for 10 seconds or until you hear a beep. The moment you push the two buttons together the display will flash green and red. After hearing the beep, the system has successfully entered into the replacement mode and you can release the buttons.	
3	Push the function key (the orange button) to select which tire sensor ID needs to be changed. The sequence of pushing the function key is as follow: Right_Front (does not need to be clicked)-> Right_Rear (click 1 time) -> Left_Rear (click 2 times) -> Left_Front (click 3 times)	
4	Deflate the tire that had the broken sensor (the tire you just installed a new sensor on) until the pressure is under 18psi . (Do not deflate the air pressure to lower than 5psi). Then re-inflate the tire to the standard tire pressure (must be over 22psi), and wait for 15 seconds, the system will automatically setup the new replacement tire ID of sensor in the system.	
5	Check the display, the display must show the green light in new replacement tire (originally was shown in red before replacement). The next sequence of tire will be shown the red. (Wait for the display to change to the next tire ID). If the next tire sensor is not needed, then just ignore the red light and click the function key (the orange button) until logged out of the replacement mode. The replacement part is now successfully installed and will start to monitor your tire pressure and temperature.	



	Further information about changing tire sensors For example: If the Right Rear sensor needs to be changed, then after accessing the replacement mode, click the function key 1 time (the orange button). At this moment, the display will show as green for the Right_Front tire, and red for the Right_Rear tire. The Rear_Rear tire should then be deflated to under 18psi. (Do not deflate the air pressure to lower than 5psi). Then re-inflate the tire to the standard tire pressure (over 22psi), and wait for 15 seconds, the system will automatically setup the new Right_Rear tire ID in the system. Check the display, the display must show a green light for the Right_Rear tire (originally was shown in red before replacement) and show the Left_Rear tire as red. (wait for the display to change the tire ID), if the Left_Rear tire sensor does not need to be changed, then just ignore the red light and click the function key (the orange button) 2 times to logout of the replacement mode and go back the tire monitoring mode. The replacement part is successfully installed. If the display does not show the green light in Right_Rear tire and red light in Left_Rear tire, the system did not successfully capture the new replacement sensor in the Right_Rear tire. It is necessary to redo the above steps.	 
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Warning Only use Orange TPMS sensor replacement parts (these can be purchased from Orange's Agents). Orange TPMS cannot use other brands of TPMS sensors for replacement parts. Using other brands will cause failure and will void the warranty.

**Appendix****Glossary**

kPa	Pressure reading in Kilo Pascal
psi	Pressure reading in pound per square inch
Bar	Pressure reading in bar
°C	Temperature reading in degrees Celsius
°F	Temperature reading in degrees Fahrenheit
Inflating Pressure environment	Recommended inflation pressure of a tire at ambient temperature of 25°C by vehicle manufacturers.
Low Pressure Alert	Visual and audible warning, this is activated when the tire's pressure goes below the preset level. Initial low pressure alert is 26 psi
High Pressure Alert	Visual and audible warning, this is activated when the tire's pressure goes higher than the preset level. Initial High pressure alert is 50 psi
High Temperature Alert	Visual and audible warning, this is activated when the tire's temperature goes higher than the preset level. Initial High temperature alert is 80 °C.
Display / Receiver Module	The electronic module mounted inside the vehicle that alerts the driver of any tire irregularities.
Sensor / Transmitter Module	The electronic module mounted on the wheels that measure the air pressure and temperature of the tire.

Annexes**Annex 1****kPa to psi Conversion Table**

<u>kPa</u>	<u>psi</u>		<u>kPa</u>	<u>psi</u>		<u>kPa</u>	<u>psi</u>
10	1		210	31		410	60
20	3		220	32		420	61
30	4		230	34		430	63
40	6		240	35		440	64
50	7		250	37		450	66
60	9		260	38		460	67
70	10		270	39		470	69
80	12		280	41		480	70
90	13		290	42		490	72
100	15		300	44		500	73
110	16		310	45			
120	18		320	47			
130	19		330	48			
140	20		340	50			
150	22		350	51			
160	23		360	53			
170	25		370	54			
180	26		380	55			
190	28		390	57			
200	29		400	58			

**Annex II**

°C To °F and °F To °C Conversion Table							
°C	°F		°C	°F		°C	°F
-40	-40		20	68		80	176
-30	-22		30	86		90	194
-20	-4		40	104		100	212
-10	14		50	122		110	230
0	32		60	140		120	248
10	50		70	158		125	257

Warranty Policy

We warrant our products for one year (365 days) from the date of original purchase to be free from defects in materials and workmanship. If, during this period, the product fails under normal usage, because of a manufacturing defect, we will replace or repair the item. To obtain repair or replacement under the terms of this warranty, please return the product to the place of purchase. Proof of purchase and date of purchase are required to validate the warranty claim.

All implied warranties, including the warranty of merchantability, are limited to this same ninety-day period from date of original purchase. We are not liable for any direct or consequential loss or property damage arising from any use of this product. This warranty gives you specific legal rights, and you may also have other rights, which vary from state to state.

This does not affect your statutory rights.

Please contact sales@orange-electronic.com, if you have any questions about our warranty program.

Colorful Life, Wonderful Innovation