USER MANUAL

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Table of Contents

I. S&T TPMS1209C01 Full-Time Direct TPMS

TPMS1209C01 is a full-time direct tire pressure monitoring system including one wireless Monitor and four screw-on Transmitters. The system can also support monitoring of the spare tire and a two-tire trailer if needed. But this requires purchase of extra replacement transmitter. The Transmitters can be screwed onto the tire valve to replace the original valve cap to sense the pressure inside the tire all the time, and transmit the pressure information data to the Monitor by RF technology.

The Monitor receives the data and displays the pressure on the screen. The Monitor will issue different alarms if the tire pressure is over or under an improper state based on the standard pressure.

S&T TPMS1209C01 will sense and display the tire pressure and temperature all the time and can issue an alarm when the tire pressure or temperature is at an improper level, so as to notify the driver to treat the problem and prevent tire damage. With the TPMS1209C01, the driver can monitor the pressure and temperature to avoid excess gasoline consumption and keep the vehicle at the proper pressure.

II. Parts of S&T TPMS1209C01
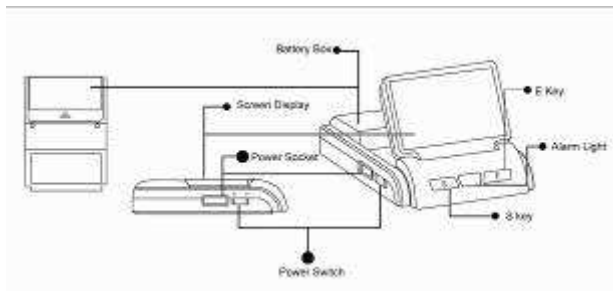
Monitor   Transmitter
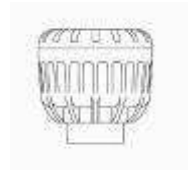
TPMS1209C01 Parts
1 Monitor
4 Transmitters
4 Security Locks
1 Lighter Plug
4 Counterweights (each 10g)
2 Wrenches
1 User Manual
1 Warranty Card

Screen Display

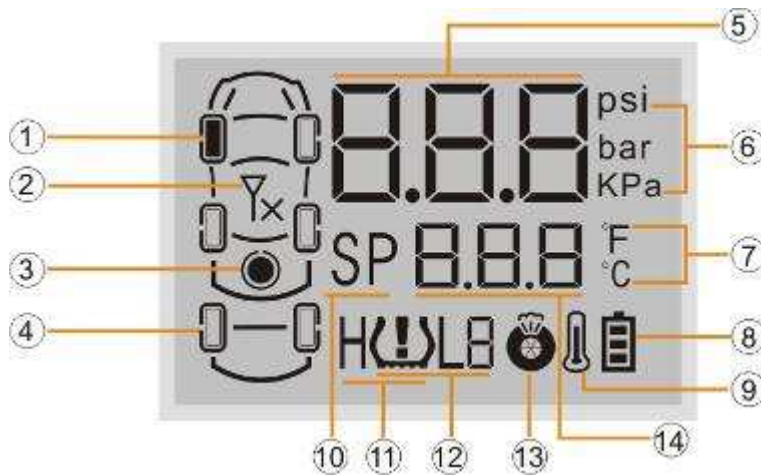| No.	Meaning	No.	Meaning
⑴ Tire position Icon	Current tire information	(8) Battery Power Icon	Battery power indication
⑵ Transmitter Trouble Icon	Transmitter trouble	⑼ High Temperature Alarm Icon	High temperature alarm
⑶ Spare Tire Icon	Spare tire position	(10) Standard Pressure Icon	Standard pressure
⑷ Trailer Icon	Trailer tire position	(11) High Pressure Alarm Icon	High pressure alarm
(5) Pressure	Pressure value	(12) Low Pressure Icon	Low pressure alarm and level
(6) Pressure Unit	Pressure unit, bar/Kpa/ psi	(13) Fast Leak Icon	Fast leak alarm
(7) Temperature Unit	Temperature unit, ℃/℉	(14) Temperature value	Temperature

III. Installation of TPMS1209C01

Installation of Monitor

1. Take out the Monitor from the package.

2. Choose a suitable location on the dashboard to install the monitor.

3. Connect lighter plug with vehicle power supply as shown in below figure.
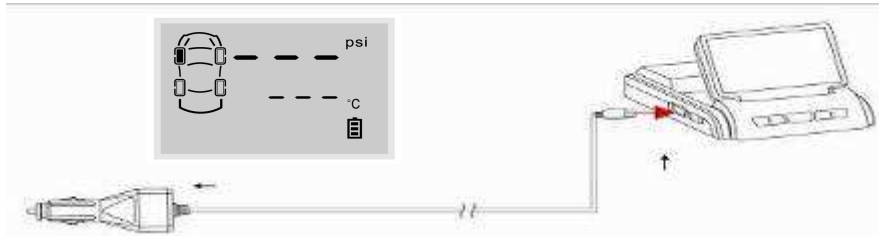
If you do not find it convenient to use the lighter plug, the battery is an option for powering the Monitor. User only needs to put two AA batteries into the battery box according to the correct direction of the positive and negative.

Note:

1. When use battery, please avoid the monitor being placed in the sun for long periods of time as it may cause battery leakage or damage.

2. If the vehicle is dormant for long periods of time, we suggest that the user pull out the lighter plug or turn off the monitor.

4. Turn on the monitor by switching to "ON". Before the transmitters are installed, the screen displays as shown below:
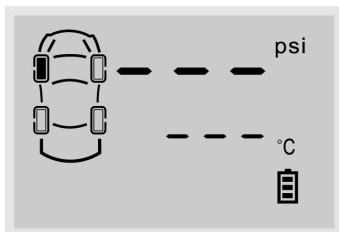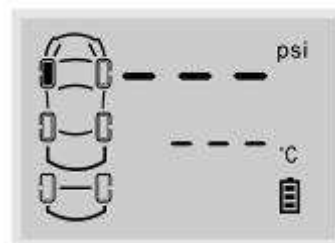
Monitor for car   Monitor for car towing a two-tire trailer

Installation of Transmitter

Transmitter installation position

Note: The transmitters must be installed onto corresponding tire position as marked on the top.

Note: FL: stands for front left tire

FR: stands for front rear tire

RL: stands for rear left tire

RR: stands for rear right tire

If the vehicle equipped with spare tire or trailer tires, please refer to

"VIII. Add New Transmitter or Replace Transmitter".

Transmitter Installation steps:

1. Turn on the monitor and ensure it works normally.

2. Remove the current tire valve cap.

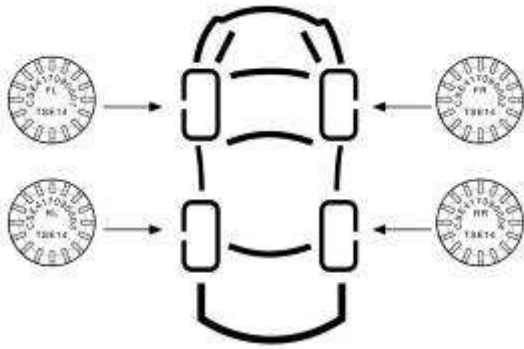3. Put the security lock on the valve, ensure the side with screw to the direction which easy for operating.

4. Install the transmitter onto the valve. Ensure the transmitter being installed onto the corresponding tire according to transmitter's marks.

5. Connect the meshing parts of the Lock and the Transmitter to make them an integrated part.

6. Screw the transmitter and security lock firmly with the wrench.
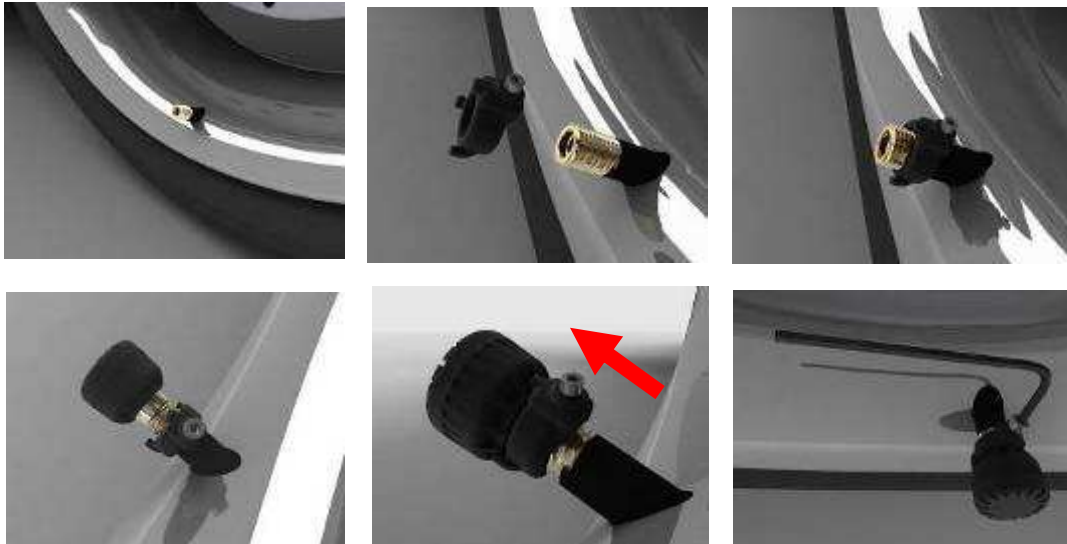
7. After transmitters are installed, they will start working and sending signals to the monitor. As showed below, the front left tire was installed with a transmitter and the monitor has received the information sent by it.

The other transmitters can be installed in the same way as stated above.

Installation of Counterweights

In order to ensure that each tire remains balanced after installation of the transmitters and security locks, it is recommended that the user should take their car to a qualified service station for re-balancing. Or the user can install the provided counterweights inside the package to keep tires balanced. To install the counterweight:

1. Clean the location where the counterweight will be installed. This location should be directly across the position of the Transmitter on the wheel.

2. Take out the counterweight from the accessory bag in the package and remove the liner material on its back.
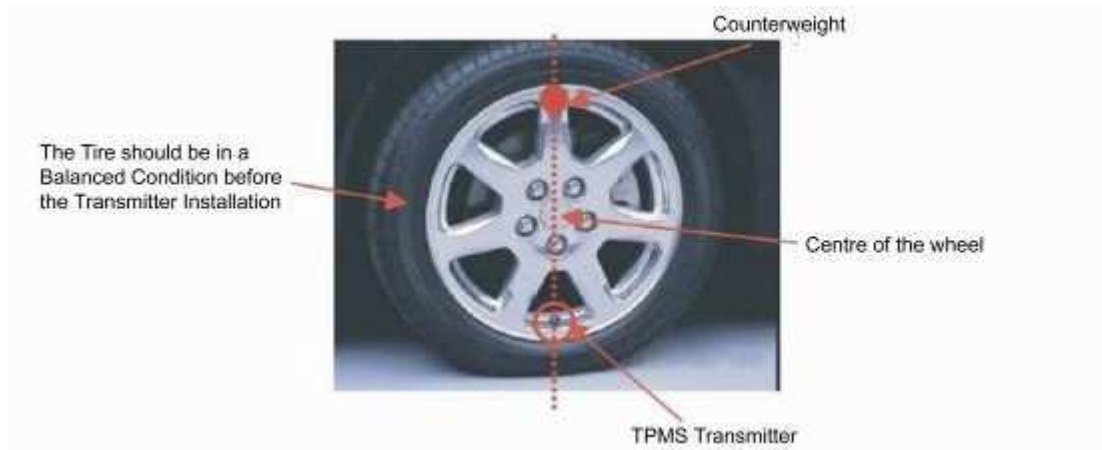
IV. Standard Pressure Inquiry and Programming

Programming Index Interface

After installed the transmitters, please check the setting of standard pressure of each tire to ensure whether it is proper, if not, please follow below steps to adjust.

Under the normal operating mode, press the E key for 3 seconds to access monitor programming index interface. The screen will display "-1-" which stands for index interface 1.
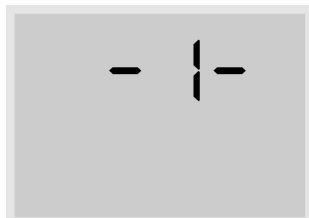
Pressure S key to switch between the interfaces from 1 to 6. Press S key for 3 seconds to exit the programming index interface and return to the normal operation mode.

Note: If there is no operation for a certain time, the system will exit the programming interface and return to the normal operating mode automatically.

Below are the functions of each index interface.

Index	Function
1	Transmitter ID Inquiry and Programming
2	Standard Pressure Inquiry and Programming
3	Pressure and Temperature Unit Inquiry and Programming
4	System Time Inquiry and Programming
5	Alarm Record Inquiry
6	Transmitter ID Deletion

Standard Pressure Inquiry

The pressure alarm that issued by monitor is based on the standard pressure.

The system will issue the high pressure alarm when the tire pressure is 25% higher than the standard pressure.

The system will issue the low pressure level 1 alarm when the tire pressure is 12.5% lower than the standard pressure.

The system will issue the low pressure level 2 alarm when the tire pressure is 25% lower than the standard pressure.

The system will issue the low pressure level 3 alarm when the tire pressure is 50% lower than the standard pressure.

It is necessary to set a proper standard pressure to ensure the system working normally. The default standard pressure set in factory is 32 psi. User can adjust the standard pressure according to actual needs.

Under the normal interface, press E key for 3 seconds to enter the monitor programming interface and display the index interface 1.
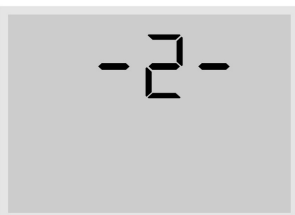
Press S key to switch to the index interface 2, then press E key to enter the standard pressure inquiry interface.

The screen displays the standard pressure for front left tire firstly. The default standard pressure is 32 psi.

Press S key to check each tires' standard pressure in turn.

Under any inquiry interface, press S key for 3 seconds to return to the index interface 2.

Standard Pressure Programming
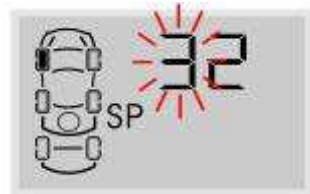
Under the standard pressure inquiry interface, press E key for 3 seconds to enter the standard pressure programming interface, and the first digit starts to flash.
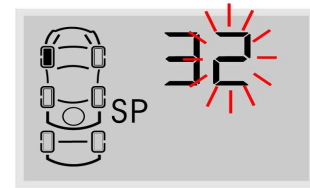
Press E key to switch to the next digit to program and the second digit flashes.
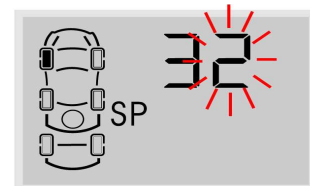
Press S key to adjust the value.

After programmed the standard pressure, press E key for 3 seconds to save, two beep are provided and screen flashes twice, then returns to the standard pressure inquiry interface.

During the process of adjusting the standard pressure, pressing the S key for a few seconds will return to the index interface 2 and will exit and the adjusted value will not be saved.

The maximum standard pressure value for all tires is as below:

480   Kpa
4.8   Bar
70   Psi

V. System Time Inquiry and Programming

Set the time when using the product for first time. The monitor provides 24 hours time system inquiry and programming. Even though the monitor is powered off, the inside clock is still in operation. The alarm information and alarm time will be saved into the monitor when alarm was issued.

Under the normal mode, press E key for 3 seconds to enter the monitor programming interface, the screen displays the index interface 1.
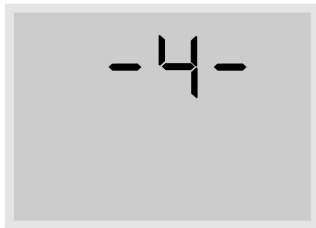
Press S key to adjust the index interface to interface 4, then press E key to enter the time inquiry and programming interface.

System time inquiry

The 1" stands for first interface. The screen displays the year and month, "08" stands for year 2008 and "10" stands for October. Press S key will go through the year/ month/ date/ hour/ minute/ second in turn.

The "2" stands for second interface. The screen displays the date and hour, "20" stands for date 20 and "10" stands for 10 am. Then time is 10 o'clock, 20th.

The "3" stands for third interface. The screen displays the minute and second, "30" stands for 30 minutes and "50" stands for 50 seconds.
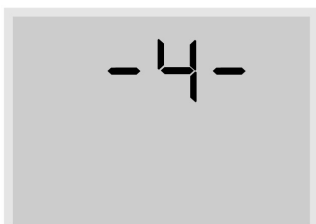
Press S key for a certain time to return to index interface 4.

System time programming

Under any inquiry interface, press E key for 3 seconds to enter the programming interface. As shown in below figure, under the year and month inquiry interface, press E key for 3 seconds to enter the programming interface, the digit "0" flashe
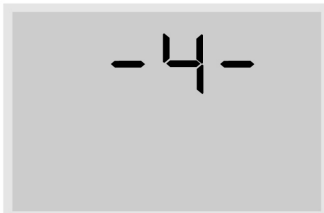
Press S key to adjust the value.

Press E key can switch to next digit.

After adjusted, press E key for 3 seconds to save with beep buzzes twice and screen flashes twice, then return to the time inquiry interface.

During programming process, press and hold S key can return to the index interface 4 and give up the change.

VI. Functions

Power Switch Automatically

The Monitor can be powered by the vehicle power through the lighter plug or the battery. Using vehicle power is strongly recommended. If the lighter plug is inserted into the power socket of the Monitor, even if the battery group is also inside the Monitor battery box, the Monitor will still draw power from vehicle power.

If power is not available from the lighter socket when the vehicle power is off, the system will automatically switch to battery power. If the vehicle has no motion for more than 10 minutes when powered by batteries, the Monitor will switch to the power-saving mode, screen will be off.
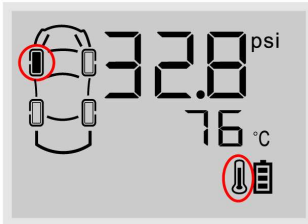
In the dormant state, once the monitor is vibrated, it will continue to work immediately.

Information Shown on the Screen

When the monitor is turned on, the screen displays the latest received information, as shown in below figure (for front left tire, the pressure is 32.2 psi and the temperature is 26℃）.

High Temperature Alarm

Function: The system will issue a High Temperature Alarm when the tire temperature exceeds 75℃.

Alarm mode: The alarm light, LCD background light, high temperature warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or the audible alarm will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light goes off only when the tire pressure returns to the standard level.

High Pressure Alarm

Function: The system will issue a high pressure alarm when the tire pressure is 25% higher than the standard.

Alarm mode: The alarm light, LCD background light, high pressure warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or the audible alarm will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light goes off only when the tire pressure returns to the standard level.

Low Pressure Level 1 Alarm

Function: The system will issue a low pressure level 1 alarm when the tire pressure is 12.5% lower than the standard.

Alarm mode: The alarm light, LCD background light, low pressure level 1 warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or the audible alarm will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light will automatically turn off when the tire pressure returns to the standard level.

Low Pressure Level 2 Alarm

Function: The system will issue a low pressure level 2 alarm when the tire pressure is 25% lower than the standard.

Alarm mode: The alarm light, LCD background light, low pressure level 2 warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or the audible alarm will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light will automatically turn off only when the tire pressure returns to the standard level.

Low Pressure Level 3 Alarm

Function: The system will issue a low pressure level 3 alarm when the tire pressure is 50% lower than the standard.

Alarm mode: The alarm light, LCD background light, low pressure level 3 warning icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or the audible alarm will automatically stop 30 seconds later. The red alarm light remains on and the display reverts to the normal mode. The red alarm light will automatically turn off when the tire pressure returns to the standard level.

Quick Leaking Alarm

Function: The system will issue a quick leaking alarm when the pressure drops more than 0.2 bar within 12 seconds.

Alarm Mode: The alarm light, LCD background light, the quick leaking icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm. The system returns to display tire information in turn.

Note: When the system issues quick leaking alarm, user can only stop the audible alarm by pressing any key. Once leakage is happened, please slow down to check the tire.

Transmitter Trouble Alarm
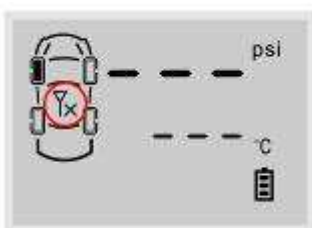
Function: If one Transmitter fails to work, or the Monitor can't receive the data because of the RF interference for a certain time, the system will issue a transmitter trouble alarm.

Alarm Mode: The red alarm light, LCD background light, the transmitter trouble alarm icon and the audible alarm turn on together.

Treatment: Press any key to stop the audible alarm or the audible alarm will automatically stop 30 seconds later. The red alarm light will automatically turn off when the monitor can receive the signals from this tire position again.

Warning of Low Battery Power

Function: The system will issue a warning alarm when the battery power is too low to afford the monitor to work.
Alarm mode: The beep buzzes twice shortly and stops，the battery icon flashes continually.

Treatment: Replace the batteries or connect the monitor to the lighter plug immediately.

Alarm Record Inquiry

The monitor will issue an alarm when the tire is under the improper status. And the monitor will record the alarm. User can inquire alarm record in this interface. The system can record the latest 10 alarms. When there are 10 alarm records saved in monitor, the new alarm will be saved and the earliest alarm will be deleted automatically.

Under the normal mode, press E key for 3 seconds to enter the monitor programming interface, the screen display the index interface 1.

Press S key to switch to index interface 5, then press E key to enter the alarm record inquiry interface.

Alarm Record Number

If there is no alarm record, the screen will display "- - -"

If there is alarm record, the latest one alarm will be displayed.

Press S key to switch between alarm records. The system can record the latest 10 alarms. Press S key to switch the alarm record number from 1 to 10.
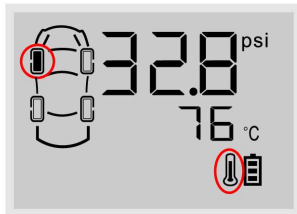
-5-   Press S key for a certain time to return to the index interface 5.

Contents of Alarm Records

l   Under the alarm record inquiry interface, press E to check alarm details. As shown in left figure, it is the first alarm record which is also the latest alarm

32.8 psi
76 ℃   The first screen displays the detailed alarm information, as shown in left figure, alarm happened to front left tire, the pressure is 32.8 psi, the temperature is 76℃, the alarm is high   temperature, as shown in the figure.

08
10   Press S key to check the detail alarm time. As shown in left figure, year and month when alarm happened are displayed.

20
10   Press S key to inquire the time. As shown in left figure are date and hour.

33   Press S key to inquiry time. As shown in left figure is minute.

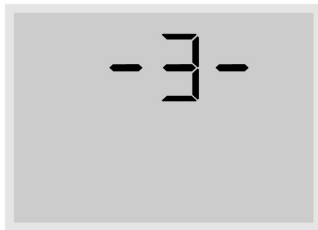l   Under the inquiry interface, press E key to return to the alarm record number interface.

-5-   Under the inquiry interface, press S key for 3 seconds to return to the index interface 5.

VII. Pressure and Temperature Unit Inquiry and Programming

The system provides 3 kinds of pressure units Psi, bar and Kpa and 2 kinds of temperature units ℃ and ℉. User can choose the desired unit as following:

32.2 psi 26 ℃   Under the normal mode, press E key for 3 seconds to enter the monitor programming interface, the screen displays the index interface 1.
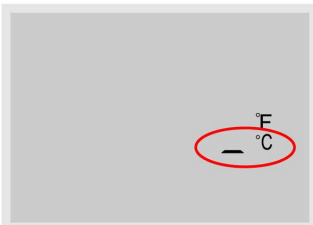
-3-   Press S key to switch to index interface 3, then press E key to enter the pressure and temperature unit inquiry interface.
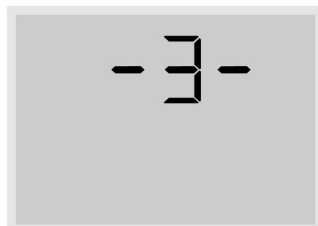
Pressure and temperature unit inquiry

psi bar KPa   The first interface displays pressure units. The unit with the "-" is the current pressure unit, as shown in left figure, the current pressure unit is psi.

℉ ℃   Press S key to switch to the temperature unit inquiry, the temperature unit with the "-" is the current unit. As shown in left figure, the current temperature unit is ℃.

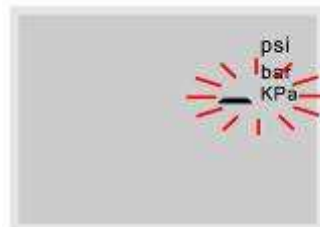-3-   Press S key for a certain time to return to the index interface 3.
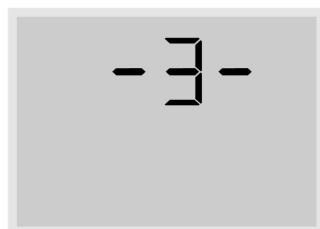
Pressure Unit Programming

Under the pressure unit inquiry interface, press E key for 3 seconds to enter the programming interface. The system current unit flashes. As shown in left figure.

Press S key to switch the pressure unit among the psi, bar and Kpa.

The current selected unit is Kpa and it will flash. Press E key for 3 seconds to save the selected unit with beep buzzes twice and screen flashes twice, and then system return to pressure unit inquiry interface.
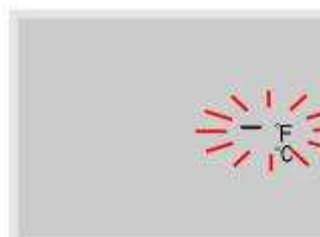
During programming process, press S key for few seconds can return to the index interface 3, no change will be saved to the system.

Temperature Unit Programming

Under the temperature inquiry interface, press E key for 3 seconds to enter the programming interface. The current unit will flash.
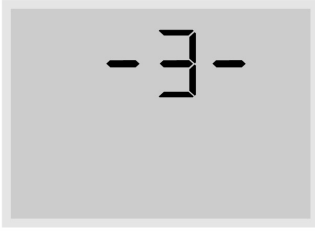
Press S key to switch the temperature units between ℃ and ℉.

The current temperature unit is ℃, the unit flashes continually. Press E key for 3 seconds to save the selected unit with two beeps and the screen flashes twice, then returns to the temperature unit inquiry interface.

During programming process, pressing the S key for few seconds will return to the index interface 3, no change will be saved to the system.

VIII. New Transmitter Adding or Transmitter Replacement

Transmitter Replacement

If one of your transmitters is broken or lost, the user only needs to replace this one; the others will work as normal.

Access the ID inquiry and programming interface, delete the broken or lost transmitter ID from the monitor and program the new ID of transmitter.

New Transmitter Adding

If add new transmitter ID, such as ID of spare tire or ID of trailer tire, first access ID inquiry and programming interface, program the ID in the corresponding tire position.

After deletion of a transmitter ID, new ID of the replacement transmitter has to be programmed into the monitor. User can find the ID number from the package.

Inquiry and Programming of Transmitter ID

Under the normal mode, press E key for 3 seconds to enter the monitor programming interface. The screen display "-1-" which stands for index interface 1.
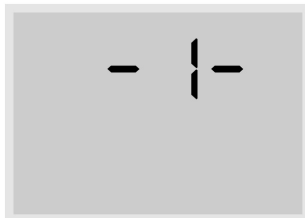
Under index interface 1, press E key to enter the transmitter ID programming and inquiry interface.

Inquiry of ID

The first interface displays first six digits of transmitter ID of front left tire, we also call the first 6 digits as "high part" of the ID number. The "H" stands for the first six digits of the ID.

Press S key to switch screen interface. At this time, the screen display the last six digits of transmitter ID, we also call it as "low part" of the ID number. The "L" stands for the last six digits of the ID.
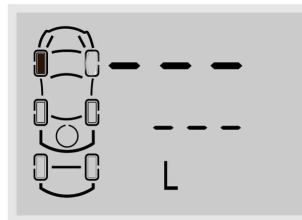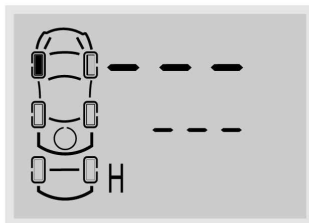
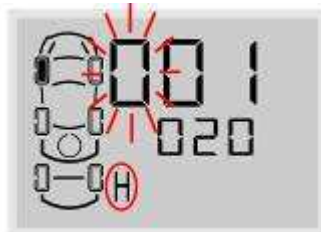Press S key to go through each transmitter's ID number.
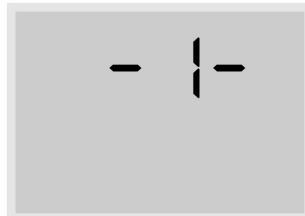
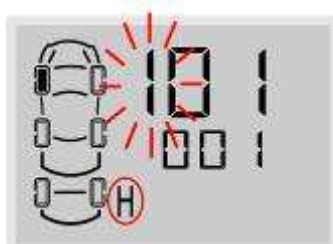Under any interface, press S key for few seconds to return to index interface 1.

As shown in below 2 figures, there is no transmitter ID programmed into the tire position in solid black.
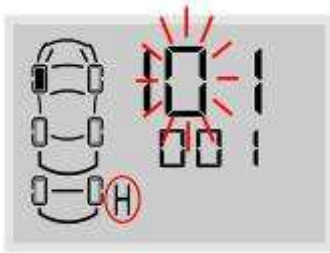
Programming of transmitter ID

Under the ID inquiry interface, press E key for 3 seconds to enter the ID programming interface. At this time, the first digit flashes.

Press S key to adjust the value from 0 to 9.

 Press E key to switch to next position to program, then the second digit flashes.

 When finish programming of the first 6 digits (High Part), press E key to switch to last 6 digits (Low part) for programming, at this time, the first digit also flashes.

 When finish programming of all 12 digits, press E key for 3 seconds to save the ID with beep buzzes twice and screen flashes twice, and then return to ID inquiry interface.
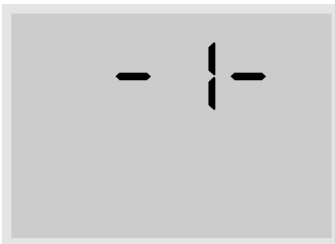
 During process of changing ID, press S key for few seconds to return to index interface 1, and no change will be saved.

Note: When finished programming, but found desired change of ID is not saved. Please check as below for possible wrong operation:
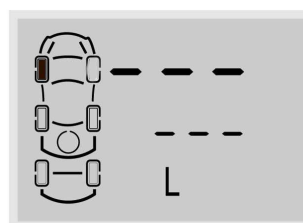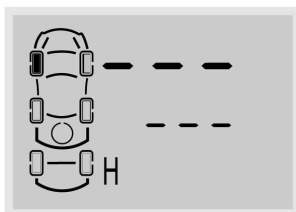
1. Programming of non-valid ID. The complete ID number of each transmitter has 12 digits, and is divided into 4 groups. For each group the digit should be in the range of 1 to 255. For example, digit such as 0 or 256 cannot be set into monitor.

2. One same ID was set into two tire positions on monitor. Each transmitter has one unique ID, each tire position on the monitor should be programmed with different ID number.

Installation of a New Transmitter

After programmed ID to the corresponding tire position in the monitor, user can install the transmitter to the corresponding tires. For installation, please refer to "III. Installation of Transmitter".

When installed successfully, user should check the standard pressure and system time on the monitor. Please refer to "IV. Standard Pressure Inquiry and Programming" and "V. System Time Inquiry and Programming".

Ⅸ. Deletion of Transmitter ID

Firstly delete the broken or lost transmitter ID from the monitor.

Under the normal mode, press E key for 3 seconds to enter the monitor programming interface, the screen displays index interface 1.
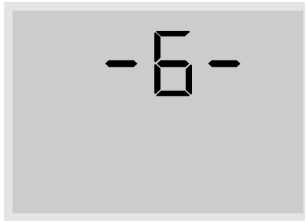
Press S key to switch to index interface 6, then press E key to enter the transmitter ID deletion interface.

The first display is first six transmitter ID number for front left tire. The red tag "d" is an initial letter of delete which stands for transmitter ID deletion interface to differentiate from the ID inquiry and programming interface.
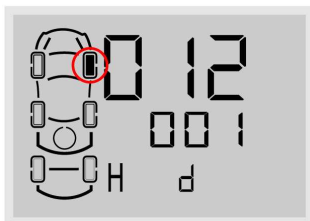
Press S key to switch to other different tires.
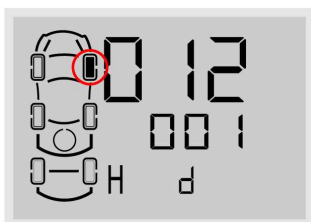
At any tire position, press E key for 3 seconds to delete the ID number with beep buzzes twice and screen flashes twice, and then return to inquiry interface.
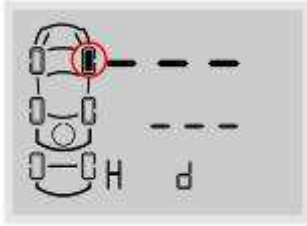
The screen display "- - -" after delete the ID number. The tire position with ID number deleted cannot be monitored under the normal mode. The screen cannot display the tire's pressure and temperature information.
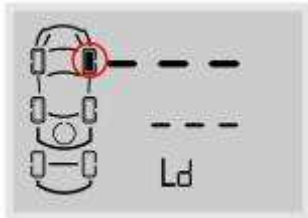
Press S key to inquire the last 6 ID number of transmitter, the screen display "- - -"which means the last 6 ID number are also deleted.
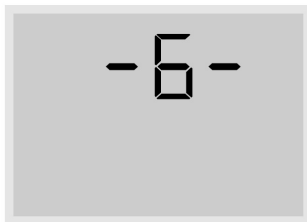
Press S key for 3 seconds to return to index interface 6.

X. Specifications

Operating Temperature of Monitor:	-30℃～ +70℃
Operating Temperature of Transmitter:	-30℃ +85℃
Pressure Monitoring Range of Transmitter:	0～6 bar / 0~87 psi
Pressure Monitoring Precision:	±0.1 bar/±1.5 psi
Modulation Type:	FSK
Mid-Frequency:	433.9 Mhz
Transmitting Power:	-10 dbm
Receiving Sensitivity:	-105 dbm
Input Voltage:	5V（cigarette lighter adapter）
	1.5V×2(AA batteries)

XI. Special Annex

1. LCD operating temperature

For all of the LCD, the lowest limitation operating temperature is -30℃, the upper temperature limit for working mode is 70℃，for storage the temperature limit is 85℃. This is determined by the character of the LCD. If the LCD works under lower temperature (for example, -30℃) for a long time, the LCD may be destroyed.

In order to use the LCD properly, we strongly recommend the user power off the display if the temperature inside the vehicle will be lower than -30℃ for a long time.

2. Checking and inflating the tire pressure regularly

In order to ensure that your tires remain at optimum pressure levels, it is strongly recommended that the user check and adjust the pressure of each tire once a month.

3. How to change a new Transmitter

If one of the Transmitters is broken or the Transmitter fails to work, you should change a new Transmitter for the tire. The broken Transmitter will not influence the other Transmitters' operation, only the broken one needs to be changed.

XII. Frequently Asked Questions

1．Q: Why is it necessary to do a periodic check on the pressure of a tire with TPMS?

A: As you drive, tires can be damaged or become unbalanced over time. Checking your tire on a regular basis will ensure that it is functioning properly and safely.

2．Q: After installation, when changing the batteries or resetting the Monitor, the pressure information doesn't appear immediately.

A: Please wait for about 6 minutes. If nothing happens, reset the Monitor Display (turn it off and on) and wait for another 6 minutes.

3．Q: Sometimes the LCD screen is not very clear.

A: This usually happens when the temperature inside the car is too low. When the temperature returns to normal, the display will become clear again.

4．Q: Blurriness appears on the LCD screen, or there the LCD screen is blank. Sometimes the audible alarm also can be heard.

A: This is usually caused by batteries of the Monitor Display being low on power. Change the

batteries or connect the Monitor Display to the vehicle power through a 12V Lighter Plug immediately.

Q: Why does the pressure inside the tire rise after running for some time?

A: This is because of the friction between the tires and the ground. Heat from the friction of a moving tire will cause pressure inside the tire to rise. The pressure inside a tire can fluctuate up or down approximately 2-4psi depending on the speed of the vehicle. This is normal for most vehicles.

Q: Why is the Monitor Display not turning on?

A: If the Monitor Display is being powered by batteries, please check whether the batteries are installed in the correct polarity and if batteries have enough power. If the Monitor is powered by the 12V Lighter Plug, please check the connection between the Lighter Plug and your TPMS unit.

XIII. Warranty Terms

Valid Warranty Card

1. The Warranty Card must be filled completely, signed by the user and

the authorized distributors of S&T TPMS.

2. The Warranty Card is valid in the countries or regions where the purchase occurs.

3. The Warranty Service requires user to offer the Warranty Card.

Warranty Condition, Responsibility and Limitation

1. The product warranty period is one year and is subject to the time marked on the invoice.

2. Any damage or faults due to improper use are not involved in the warranty commitment.

3. User is not allowed to open, repair and refit the products by themselves, otherwise the warranty service will be invalid.

4. The warranty does not include replacement of the enclosure and display panel.

5. The warranty does not cover product damage due to abrasion and corrosion.

XIV. Important Notes

1. The Warranty Card must be filled completely and its number shall be quoted whenever the user requires the service.

2. Please inform Sate in the case that the telephone number or address on the Warrant Card is changed.

3. The warranty responsibility is subject to the conditions and limitations specified in the *User Manual*.