

*Think safety think Steelmate*

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**STEELMATE CO., LTD.**

Steelmate Industrial Park, Heping Street, Dongfu Road, Dongfeng Town,  
Zhongshan City, Guangdong, P.R. China 528425



PPI0192R/B

**STEELMATE®**  
*Automotive*

TP-V1

*Solar-Powered TPMS for Trailer*



Manual

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## Disclaimer

1. TPMS (Tire pressure Monitoring System) is designed for monitoring tire irregularities. Driver has responsibility to maintain tires regularly.
2. Driver should react promptly once warning from this unit alerted.
3. Steelmate do not guarantee or assume liability for the loss of sensors.
4. If the solar energy display placed in temperatures higher than 70°C (or 158°F), it may permanently damage the built-in battery's capacity.
5. The built-in battery is damaged if the display won't be powered/charged or the case of display expanded. Please stop using it and change it at local dealer.
6. Discharge and charge fully every 6 months to preserve battery life.
7. Store between -20°C to +70°C (-4°F to +158°F). Charge between -10°C to +65°C (+14°F to +149°F)
8. Do not expose the battery to high heat or direct flame.
9. Dispose of properly.
10. Do not throw in trash or incinerate.
11. Do not get battery wet, store in high humidity or otherwise short circuit.
12. Do not disassemble or tamper with battery.

## Important notice

1. All sensors in this unit have been pre-set individually for each tire in the factory.
2. Whenever the location of tire changed, the sensors must be changed to the corresponding tire.
3. Velcro included as optional to fix the display on the dashboard.
4. Do not recommend using this system on electric car.
5. The sensor battery life related with the driving mileage.
6. The display will flame out when
  - ACC is OFF for 20s.
  - No shock detected
  - The battery didn't be changed for 20s

## Key features

- Special for trailer (with either 2 or 4 wheels)
- Sensor preset in factory , no pairing is needed
- Switch to different powered vehicles easily and quickly
- Wireless 2-way rechargeable display (place on dashboard freely)
- Display can be charged by solar energy or Mini USB charging slot
- Intelligent design for power saving of display
- Self-testing for each power on
- High battery capacity for a month use
- End users can set the threshold of tire pressure
- Convertible pressure unit (PSI / Bar)
- Sleeping mode available
- Display with visual and audible warning for tire pressure
- Low display battery warning

## Specifications

### Sensor:

Operating frequency: 433.92  $\pm$  0.015MHz  
 Operating voltage: 2.0~3.6V  
 Operating current:  $\leq$ 2.0uA  
 Operating temp: -30°C~+105°C/  
 -22°F~+221°F  
 Pressure range: 0~8Bar/0~116PSI

### Display:

Operating frequency: 433.92MHz  $\pm$ 0.015MHz  
 Operating voltage: 2.6~3.6V  
 Operating current:  $\leq$ 3mA  
 Static current:  $\leq$ 100uA  
 USB charging current:  $\leq$ 40mA  
 Operating temperature: -20°C~+70°C /  
 -4°F~+158°F  
 Solar charging current:  $\geq$ 15mA (at 5500L 25°C)  
 Charging temperating: -10°C~+65°C /  
 +14°F~+149°F  
 Bulit-in battery capacity: 3.2V / 160mA  
 ※ Maximun display tire pressure is 99PSI

### Repeater:

Operating frequency: 433.92MHz  $\pm$ 0.015MHz  
 Operating voltage: 9~27V  
 Operating current: <20mA  
 Operating temperature: -40°C~+85°C /  
 -40°F~+185°F

### Adjustable pressure range:

Low pressure: 1.0Bar~3.4Bar / 15~50PSI  
 High pressure: 3.4Bar~6.2Bar / 50~90PSI

### Default value:

High pressure value: 4.5Bar / 65PSI  
 Low pressure value: 1.7Bar / 25PSI  
 High temp value: +80°C / +176°F

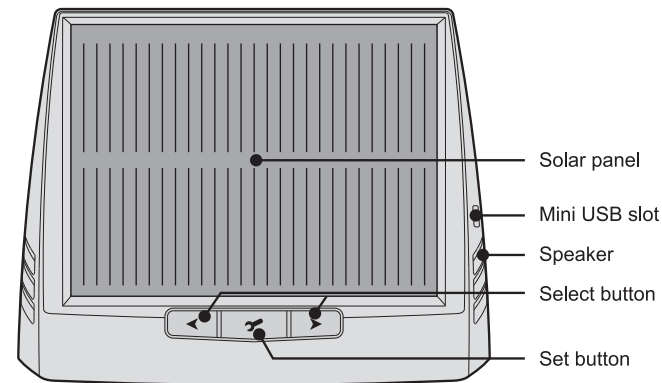
### Precision:

Temperature:  $\pm$ 3°C /  $\pm$ 5°F  
 Pressure:  $\pm$ 0.1Bar /  $\pm$ 2PSI

### Air pressure unit:

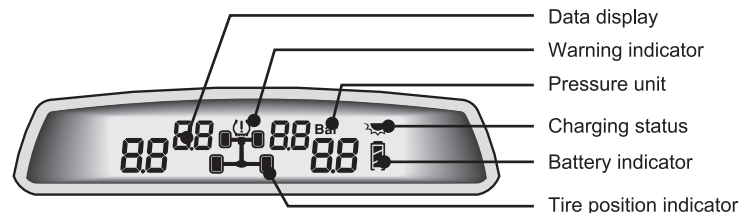
1Bar = 14.5PSI = 100K Pa = 1.02kgf/cm<sup>2</sup>

## Brief look



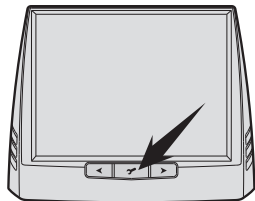
### Notes:

- Press and hold "◀" + "▶" at the same time to turn off the display
- Press and hold any button start again.
- Press and hold "◀" + "▶" reset to default.



## Settings

Press and hold "↶" button for 5 seconds, the display "Bi" once and enters setting mode.



Press "◀" or "▶" button to adjust the pressure unit / high pressure value / low pressure value.

Press "↶" button for 3 seconds, it will have twice "Bi" sound for save and exit the setting mode.

Tips: In setting mode, if there is no operation in 3 minutes, the system will exit automatically and return to normal mode.

### Pressure unit setting:

In the setting mode, the icon "Bar"/ "Psi" will flash for setting the pressure unit. Press "◀" or "▶" to select the corresponding pressure unit, then press "↶" once to save and jump to next setting; OR press "↶" for 3 seconds to save and exit the setting mode.

Pressure unit setting



Select the pressure unit



Jump to next setting



OR exit the setting mode



### High pressure value setting:

In the setting mode, "HI" displayed together with the flashing pressure data flashing for setting the high pressure value. Press "◀" or "▶" to adjust the pressure value, then press "↶" once to save and jump to next setting; OR press "↶" for 3 seconds to save and exit the setting mode.

High pressure value setting



Adjust the pressure value



Jump to next setting



OR exit the setting mode



### Low pressure value setting:

In the setting mode, "LO" displayed together with the flashing pressure data flashing for setting the high pressure value. Press "◀" or "▶" to adjust the pressure value, then press "↶" once to save and jump to next setting; OR press "↶" for 3 seconds to save and exit the setting mode.

Low pressure value setting



Adjust the pressure value



Back to pressure unit setting

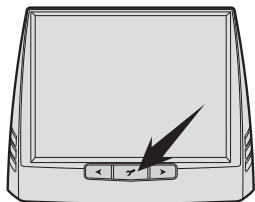


Exit the setting mode

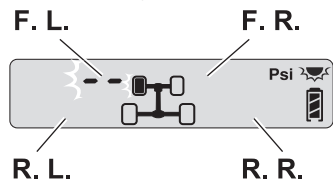


## Sensor programming

Press "↵" button for 5 times, the display "Bi" once and enters programming mode.



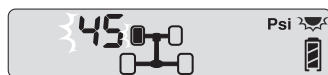
Press "◀" or "▶" button to select the correct tire (F.L.>F.R.>R.R.>R.L.)



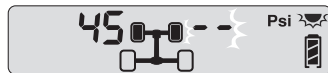
Screw new sensor to the corresponding tire and secure it with the nut



Tire pressure will show on the corresponding tire data position and tire position indicator will be flashing



Press "↵" once to save the data, and press "▶" to program the next sensor.

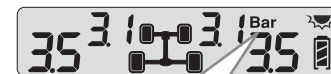


Press and hold "↵" button for 3 seconds, it will have twice "Bi" sound for save and exit the setting mode.



## Different Scenarios

### Normal



### Low pressure



### Air leakage



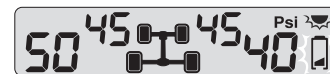
### Sensor low battery



### High pressure



### Display low battery



High temperature



PSI unit

Sensor failure

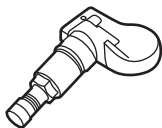


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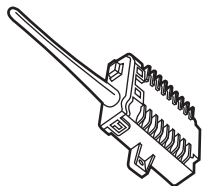
## Includes



Display **X1**



Sensor **X4**



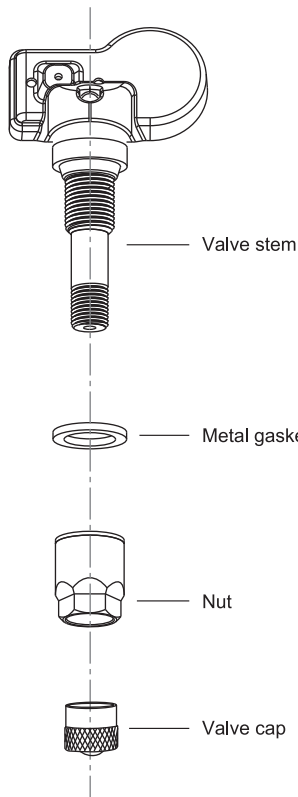
Repeater **X1**



Manual

※ The above graphics are for reference only

## About the TPMS sensor



Valve stem

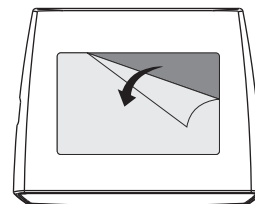
Metal gasket

Nut

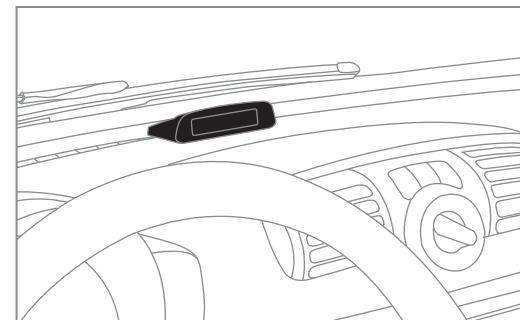
Valve cap

## Display installation

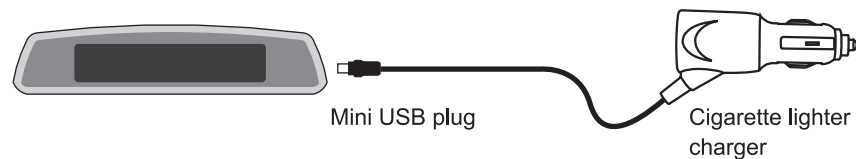
### Installation position



Tear off sticker or Velcro,  
and fix it on dashboard



### Cigarette lighter charging connection

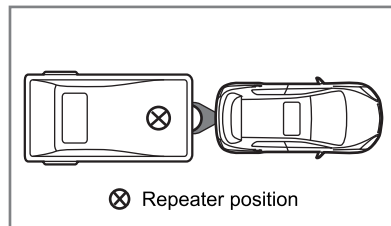
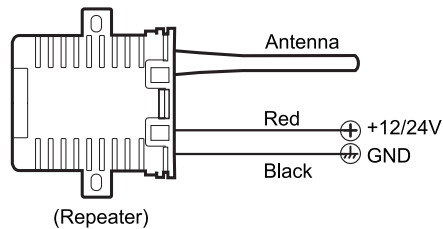


Mini USB plug

Cigarette lighter  
charger



## Repeater installation

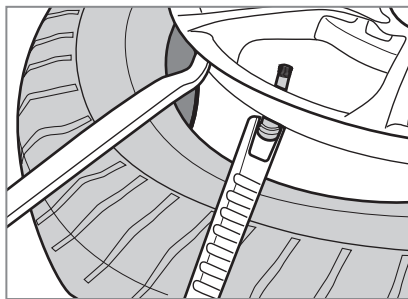


Notes:

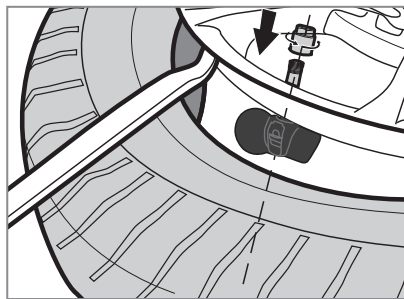
1. Repeater should be installed in the middle position of ALL tires.

2. Don't install the repeater in the front of trailer.
3. Repeater should be fixed by screw or wire tie.
4. Please place the antenna away from the metal parts to reduce the interference.

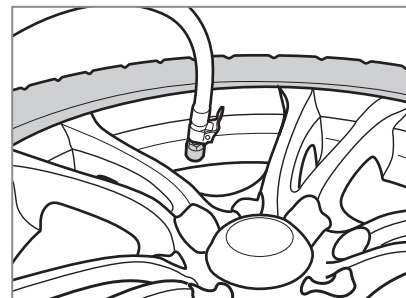
## Sensor installation



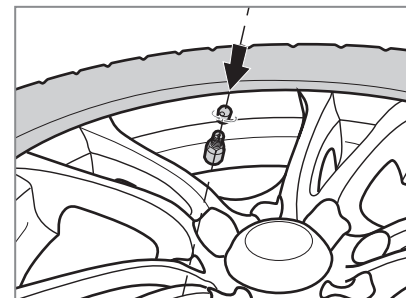
Remove the original valve from vehicle



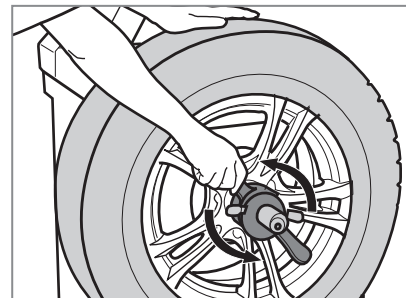
Install the sensor (the installation position indicates on the sensor)



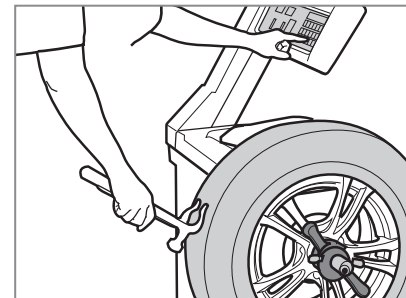
Inflate the tire



Screw the nut and valve cap



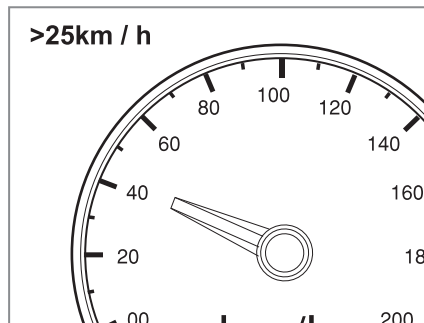
Perform a dynamic balance testing



Adjusting and counterweight by putting the weight bar

## Functional test after installation

Display will show real time tire data automatically when the speed is over 25km/h ( 15.5MPH)



Installation is done once 4 tire data received and showed at the same time

## Troubleshooting

### 1. After the installation, there is no tire data on the display.

- The sensors didn't be programed to the display. Please reprogram the sensors.
- The display should show the real time tire data automatically when the speed is over 20km/h.
- Please make sure the display turned on and charged.

### 2. There is no tire data for one of tires on the display.

- That sensor didn't be programmed to the display. Please reprogram it.
- There is a problem with the sensor.

## FCC warning statement

1. 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.
- (2). This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

#### NOTE:

(1). 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.

(2). 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.

(3). However, there is no guarantee that interference will not occur in a particular installation.

(4). 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 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.