Think safety think Steelmate

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PPI0374R/A

STEELMATE®
Automotive

TP-83E

TPMS for Truck

Tire Pressure Monitoring System

Manual

Contents

Disclaimer

1. Tire Pressure Monitoring System (TPMS) is designed for monitoring tire irregularities. Driver has responsibility to maintain tires regularly.
2. Driver should react promptly once warning from the unit alerted.
3. Steelmate does not guarantee or assume liability for the loss of sensors.
4. All sensors in this system have been pre-set individually for each tire.
5. Steelmate reserves the right to revise the product design, which is subject to revise without notice.

Important notice

1. Whenever the location of tire changed, the sensors must be changed to the corresponding tire.
2. The sensor battery lfe depends on the driving mileage.
3. TPMS is a wireless RF product, therefore, it may not receive signals due to the high interference environment.
4. This system is for commercial vehicles with power output 12V or 24V DC only.
5. Never place the unit near a heat emitting source.
6. This system should be installed by professional technician.
7. This system max. fit for 10-tire tractor with 20-tire trailer

About the product

A Tire Pressure Monitoring System (TPMS) is an electronic system designed to monitor and display the real-time tire pressure and temperature of vehicles. The system will have both visual and audible warning once there is any abnormal tire situation. The external sensor designed for DIY installation to reduce the installation cost and time during the sensor replacement.
With the universal design, this system can be programmed 4~30 tires according to different commercial vehicle.

Key features

- TPMS for commercial vehicles
- Suitable for 12~24V vehicles
- Match with 4-30 tires (10 tires max in tractor and 20 tires max in trailer available)
- Sensor in trailer can be paired automatically when repeater matches with display
- Built-in TPMS sensor partner with dry battery power
- Real-time monitoring tire data

Specifications

Sensor:

Operating frequency:	433.92 ± 0.05MHz
Operating voltage:	2.1~3.3V
Operating temperature:	-40~+105°C / -40~+221°F
Pressure range:	0~12Bar / 0~174PSI
Pressure accuracy:	±0.2Bar / ±3PSI
Temperature accuracy:	±3°C

Display:

Operating frequency:	433.92 ± 0.05MHz
Operating voltage:	9~28V
Operating current:	⩽40mA
Operating temperature:	-20~+70°C / -4~+158°F
Storage temperature:	-40~+90°C / -40~+194°F

Repeater:

Operating voltage:	9~28V
Operating current:	⩽85mA
Operating temperature:	-20~+85°C / -4~+158°F
Storage temperature:	-40~+125°C / -40~+257°F

Default value:

High pressure:	10.0Bar / 145PSI
Low pressure:	7.0Bar / 101PSI
High temperature:	80°C / 176°F

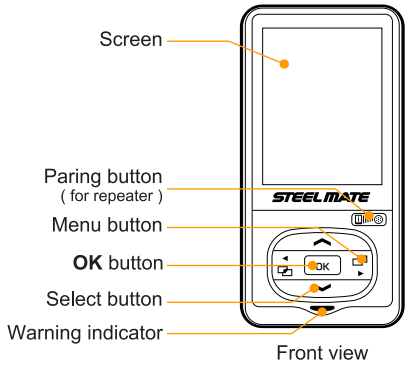
Adjustable value:

High pressure value:	8~10.5Bar / 116~152PSI
Low pressure value:	6~9Bar / 94~130PSI
High temperature value:	70~99°C / 158~210°F

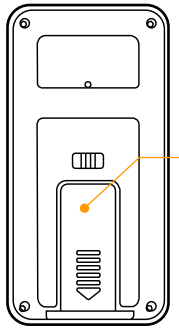
Air pressure unit

1 Bar = 14.5 PSI = 100K Pa = 1.02 Kgf/cm^2

Brief look of display



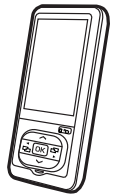
Front view



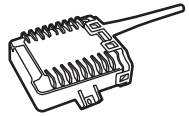
Rear view

Note: The AAA type batteries are only used for sensor programming mode. Please remove the batteries on display once sensors programming is completed.

Includes

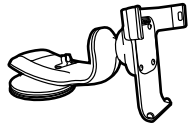


Display

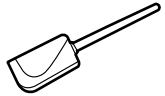


Repeater

External Sensor

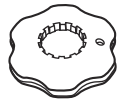


Holder



Antenna

Cable



Sensor tool

Washer

Nut

Spanner

Wire tie

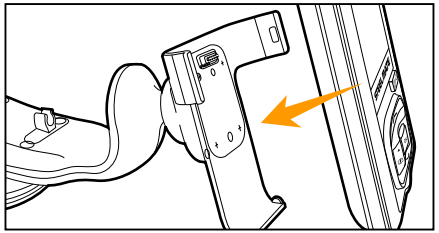
Suction cup case

Dustproof cover

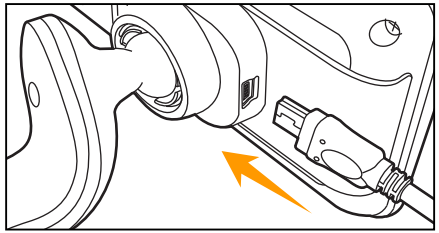
Manual

※ The above graphics are for reference only

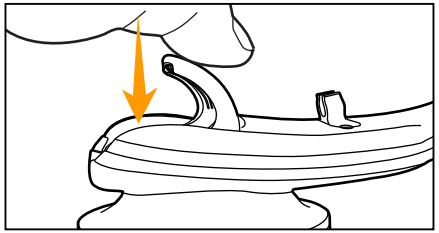
Display holding



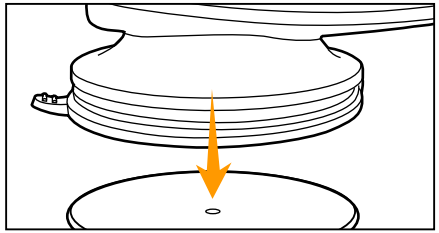
1. Fit the display on holder



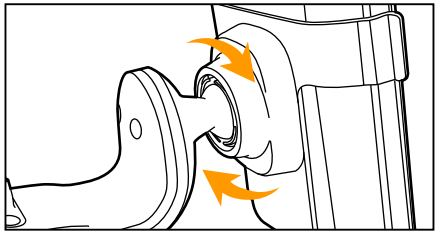
2. Plug the power cable into holder



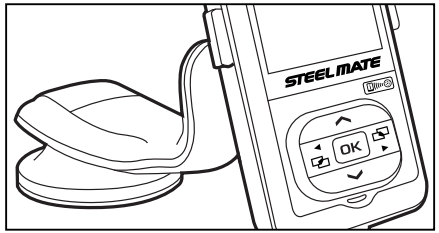
3. Plug the suction cup to hold the display steady



4. If the suction cup not stick as well to the dashboard, you can place the suction cup case under it

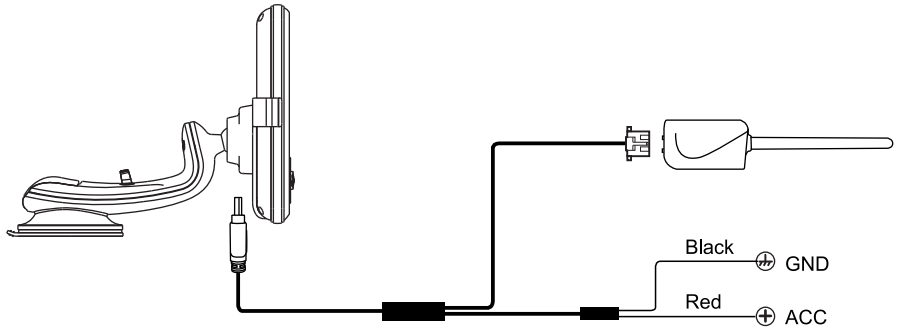


5. Rotating the ball joint to make an optional viewing angles

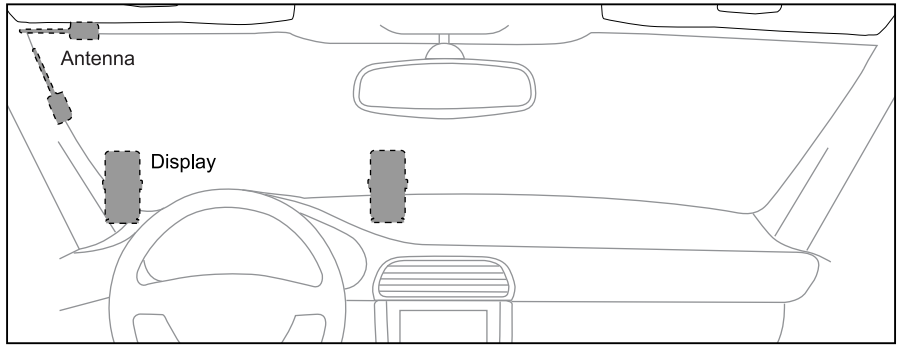


6. Installation completed

Display & antenna wiring

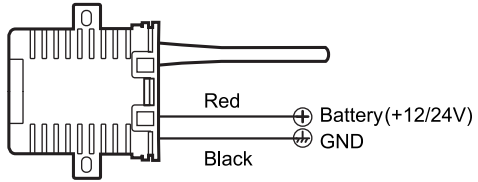


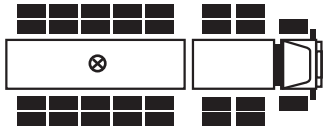
Notes: The above graphics are for reference only



Notes: The recommended position as above

Repeater installation

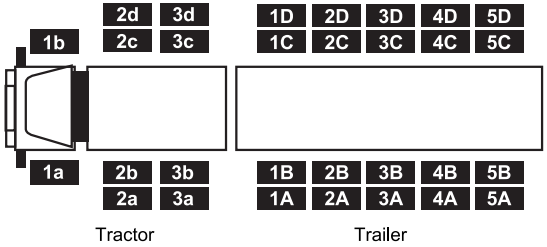




Notes:

1. Repeater should be installed in the middle of trailer.
2. Don't install the repeater in the front of trailer.
3. Repeater should be fixed by screw or wire tie.

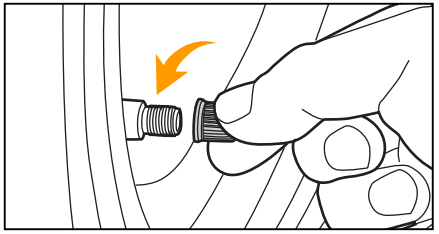
Sensor position



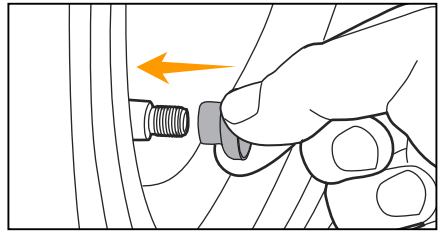
Note: Please install the sensor follow the corresponding tire position as above.

Sensor installation

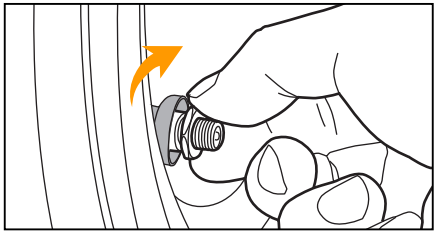
Please install all sensor before using this system, all sensors are pre-programmed in factory.



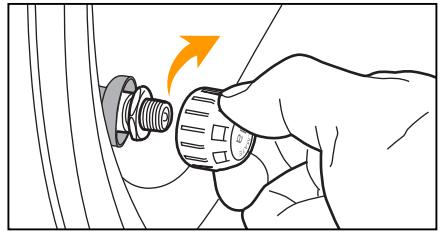
1. Unscrew the valve cap



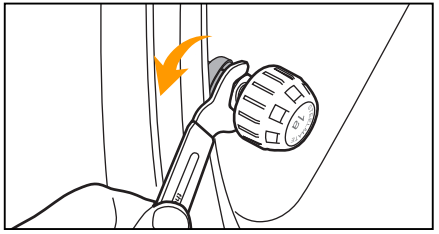
2. Insert the dustproof cover into the valve stem



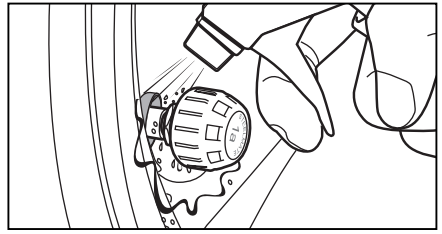
3. Screw in the nut



4. Screw on the sensor



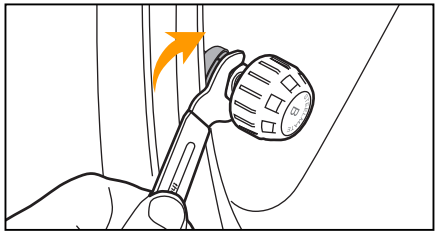
5. Tighten up the nut to the sensor by using the spanner



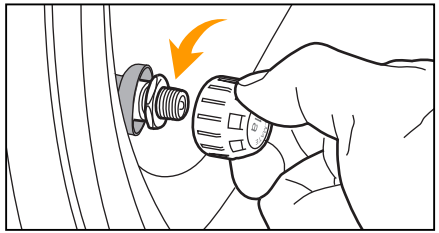
6. Check air leakage by spraying soapy water

Sensor battery replacement

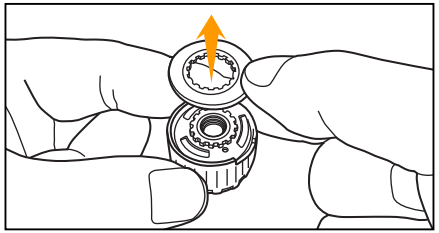
Once the sensor is run out of battery, please follow the steps to replace the battery as below.



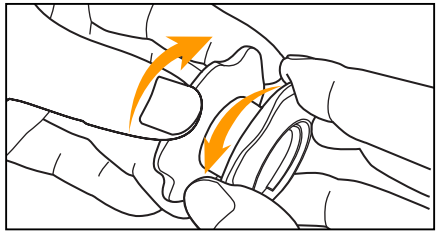
1. Unscrew the nut



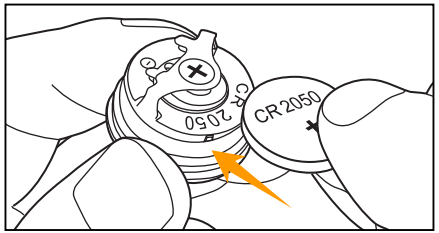
2.Unscrew the sensor



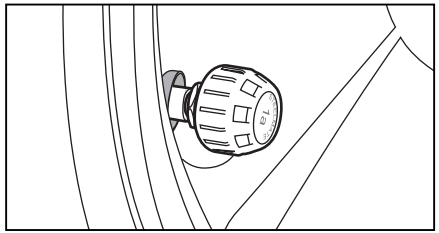
3. Remove the washer



4. Unscrew the sensor cover by using the sensor tool



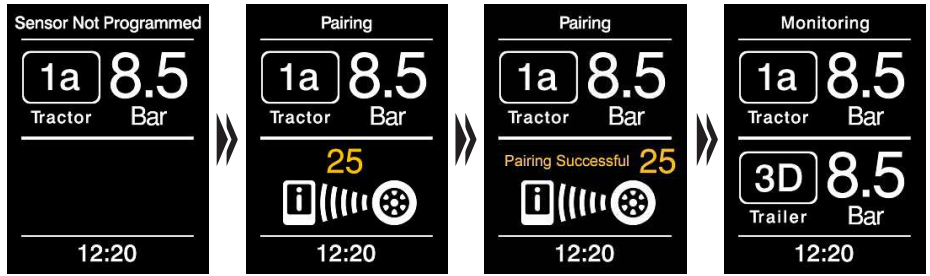
5. Replace the battery



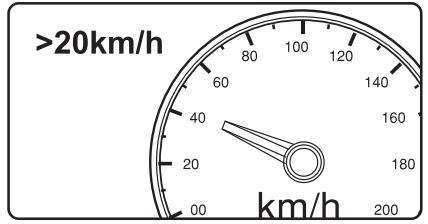
6. Follow the "sensor installation" steps to install the sensor

Repeater Pairing

Once the sensors and repeater installation are done, turn on ACC and press " " button for 3 seconds, the repeater will pair to the dispaly automatically.



Functional test after installation



Display will show real-time tire data automatically when the speed is over 20km/h (12.4MPH)

Installation is done once tires data received and shown at the same time.

General monitoring interface

- Display scrolls to show individual real-time tire pressure once display power on.
- Once detect the abnormal tire data, the display will “Bi-Bi-Bi” for 30 seconds or press "**OK**" button to stop and jump to 3rd image as below.
- In abnormal tire status, the display will “Bi-Bi-Bi” for 5 seconds every minute, until the tire problem is fixed.

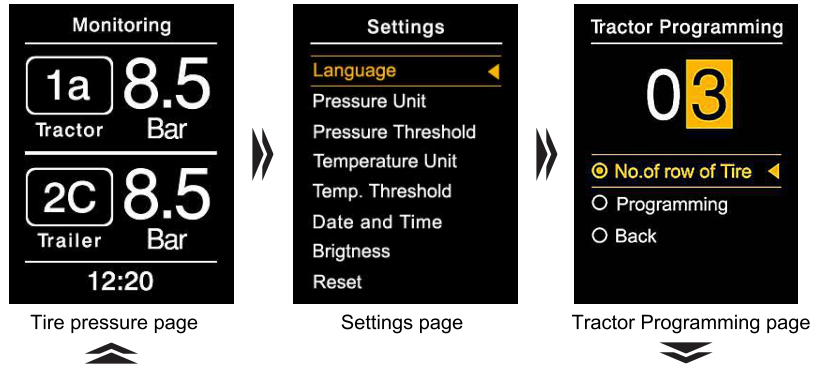
Normal status | Detect the abnormal tire | Abnormal status warning

ON/ OFF display

Once ACC is on, if no receive the signal in 8 minutes, the display will be turned off automatically.
If remove the display from the holder which will be only powered supply by battery, if no operation in 30s, the display will be turned off automatically.

Function setting

Once power is ON, press "◄" or "►" button to select the function page.



Tire pressure page | Settings page | Tractor Programming page

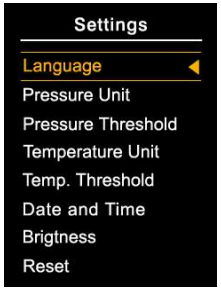
Tire temperature page | Warning Records page | Trailer Programming page

Note:

1. In each function page, the system will exit and return to normal page if there is no operaion in 3 minutes.
2. The system will “Bi” twice to save and exit the setting mode.

Setting page

In normal page, press " ⧉ " button once to enter to the setting page.

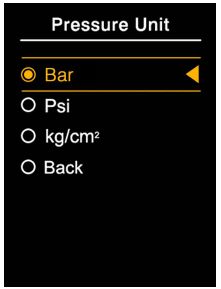


1. Language setting

Press "**OK**" button to enter the language setting. And press "∧" and "∨" button to select the language. press "**OK**" button again to save and exit the language setting page. Then press "∨" and "**OK**" button to enter to Pressure Unit setting.

2. Pressure unit setting

Press "∧" and "∨" button to select the pressure unit. Press "**OK**" button to save and exit the Pressure unit setting page. Then press "∨" and "**OK**" button to enter to Pressure threshold setting.



3. Pressure threshold setting

Press "∧" and "∨" button to select Tractor Pressure or Trailer Pressure, then press "**OK**" button to enter the Max. pressure and Min. pressure threshold value setting.

Press "∧" and "∨" button again to adjust the value, and press "**OK**" button to save and exit the setting mode.

Max pressure range: 8~10.5 Bar or 116 ~ 152 PSI

Default value: 10.0 Bar or 145 Psi

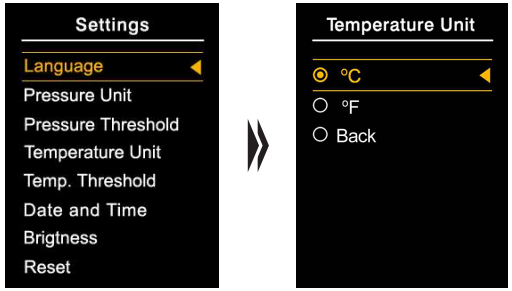
Min pressure range:6.5~9.0 Bar or 94~130 Psi

Default value:7.0 Bar or 101 Psi

4. Temperature threshold setting

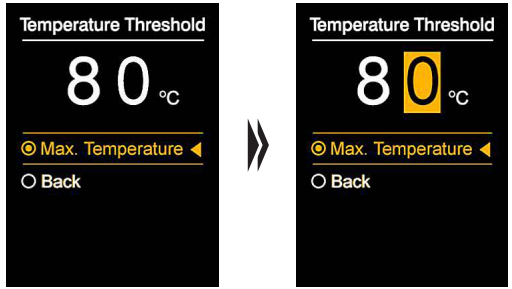
In normal page, press " ⏎ " button once to enter to the setting page. Press "^" and "v" button to select the temperature unit and press "**OK**" button to enter the selecting mode.

Press "^" and "v" button to select temperature unit, and then press "**OK**" button to save and exit the setting mode .



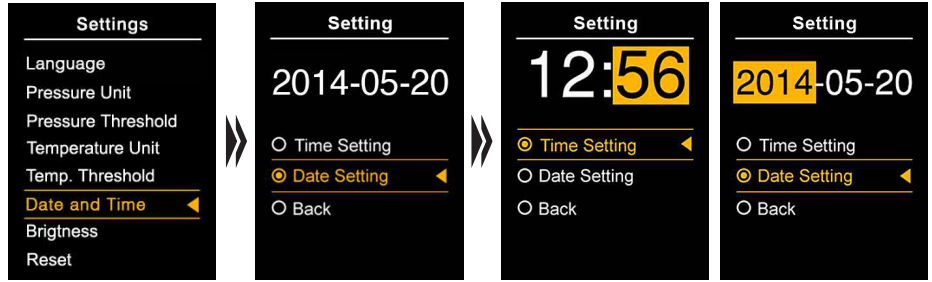
5. Max. temperature setting

In setting page, Press "^" and "v" button to select and press "**OK**" button enter the Max. temperature setting. Press "^" and "v" button to adjust the value, and then press "**OK**" button with "Bi" twice to save and exit the setting mode



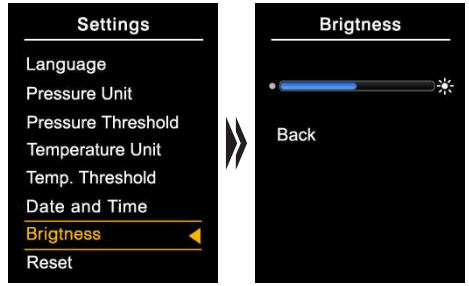
6. Date and time setting

In setting page, press "^" and "v" button to select and press "**OK**" button enter the date and time setting. Press "^" and "v" button to select time setting or date setting and press "**OK**" button enter adujstment mode. Then press "^" and "v" button to adjust the value and press "**OK**" button to save the value. After that press " ⏎ " exit the setting mode.



7. Brightness setting

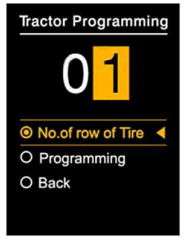
In setting page, press "^" and "v" button to select and press "**OK**" button enter the brightness setting. Press "^" and "v" button to adjust the brightness level, and then press "**OK**" button with "Bi" twice to save and exit the setting mode.



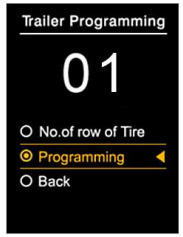
Tractor sensor programming

Once power is on, press " " button to select Tractor programming mode.
press "^" and "v" to select No.of row of tire and then press "OK" button enter the tractor axles number selecting. Press "^" and "v" to select the tractor axle number and press "OK" to confirm.(Only 1-3 axles tractor can be selected)
After that select Programming and press "OK" button to enter tractor sensor programming mode. Press "^" and "v" to select corrsponding tire position, and then put the display near the corrsponding tire (the distance within 5-10cm), press " " button once, the dispay LED indicator will turn on for 5 seconds, after 5 seconds the display will "Bi" twice and corsponding tire position icon will turn green to indicate that the tractor sensor is programmed; If the corsponding tire position icon not turn green to indicate that the tractor sensor is not programmed.

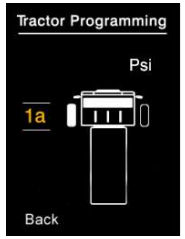
Select tractor axles number



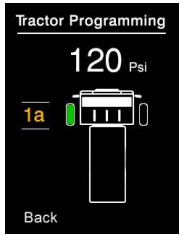
For 1-axle tractor



Enter tractor sensor programming



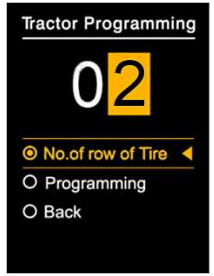
1a position selected



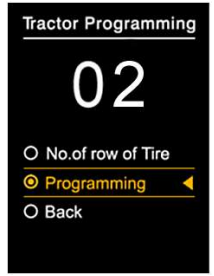
1a sensor is programming successfully

For 2-axle tractor:

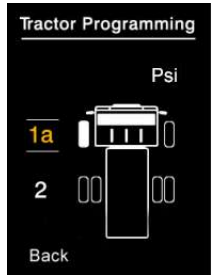
Select tractor axles number



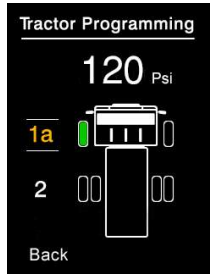
2-axle tractor selected



Enter tractor sensor programming

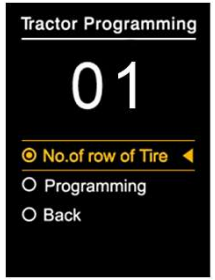


1a position selected

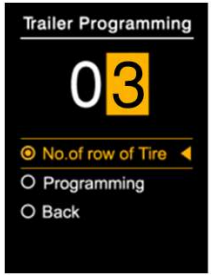


1a sensor is programming successfully

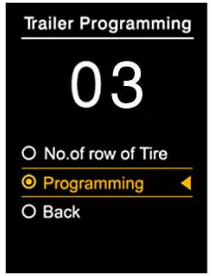
For 3-axle tractor:



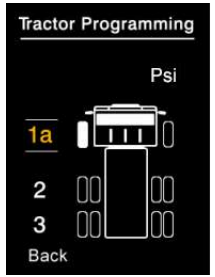
Select tractor axles number



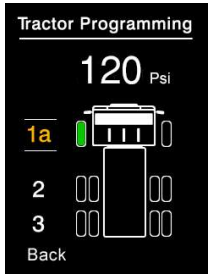
3-axle tractor selected



Enter tractor sensor programming



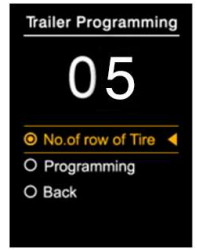
1a position selected



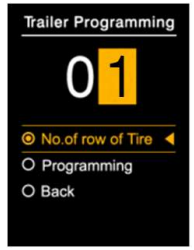
1a sensor is programming successfully

Trailer sensor programming

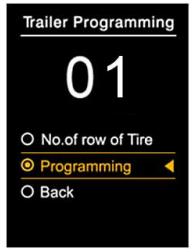
Once power is on, press " " button to select Trailer programming mode.
press "^" and "v" to select No.of row of tire and then press "OK" button enter the trailer axles number selecting. Press "^" and "v" to select the trailer axles number and press "OK" to confirm.(Only 1-5 axles trailer can be selected)
After that select Programming and press "OK"button to enter trailer sensor programming mode. Press "^" and "v" to select corrsponding tire position, and then put the display near the corrsponding tire (the distance within 5-10cm), press button once, the dispay LED indicator will turn on for 5 seconds, after 5 seconds the display will "Bi" twice and corsponding tire position icon will turn green to indicate that the tractor sensor is programmed; If the corsponding tire position icon not turn green to indicate that the tractor sensor is not programmed.



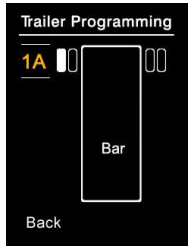
Select trailer axles number



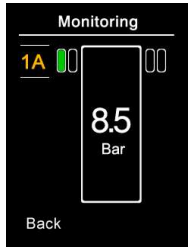
1-axle tractor selected



Enter trailer sensor programming

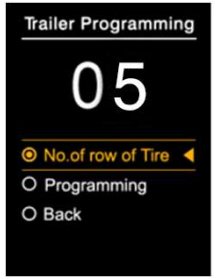


1A position selected

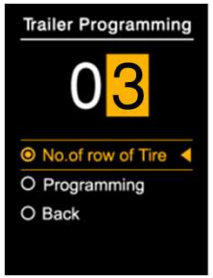


1A sensor is programming successfully

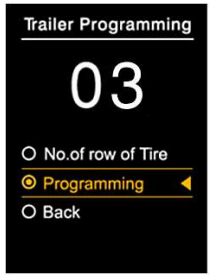
For 3-axle tractor:



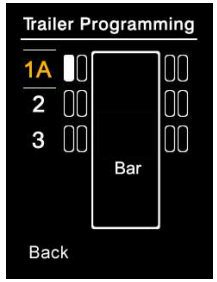
Select trailer axles number



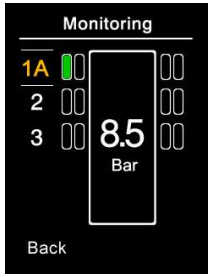
3-axle trailer selected



Enter trailer sensor programming

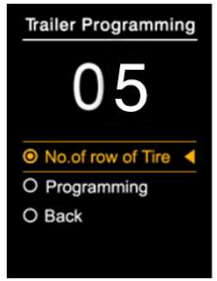


1A position selected

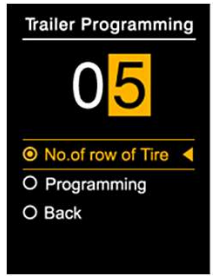


1A sensor is programming successfully

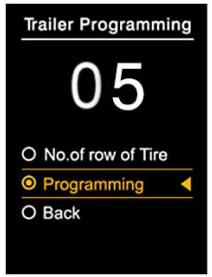
For 5-axle tractor:



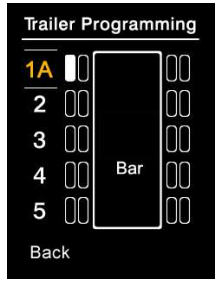
Select trailer axles number



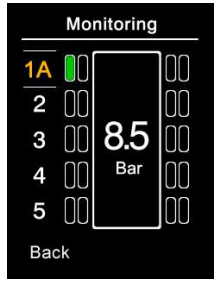
5-axle trailer selected



Enter trailer sensor programming



1A position selected

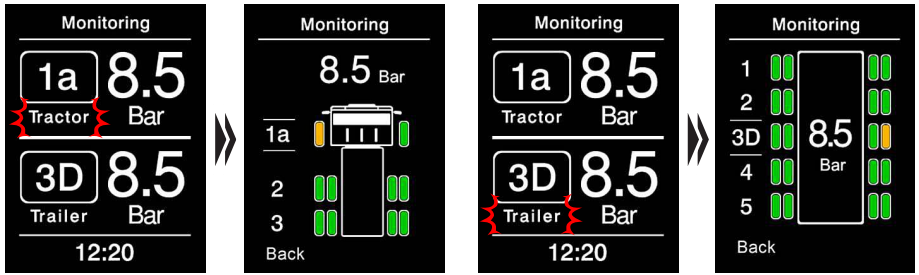


1A sensor is programming successfully

Corresponding tire pressure position checking

Follow the steps as below, you can double confirm the corresponding tire pressure position.

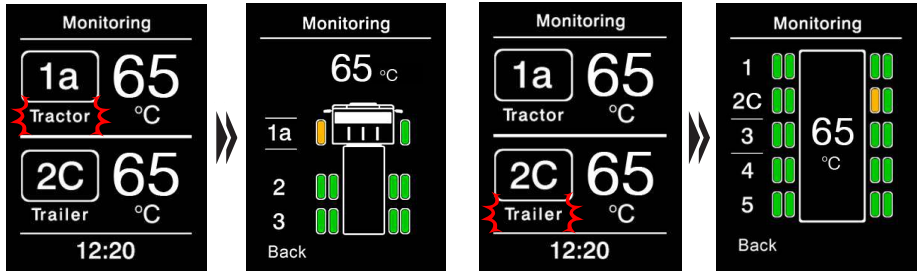
- In normal page, hold the "^" button for 3 seconds the "**Tractor**" icon flash to indicate that enter the tractor tire position checking successfully.
- Or hold the "v" button for 3 seconds the "**Trailer** " icon flash to indicate that enter the trailer tire position checking successfully.
- Press the "^" and "v" button to select individual sensor, and then press "**OK**" button to overlook the corresponding tire pressure position.



Corresponding tire temperature position checking

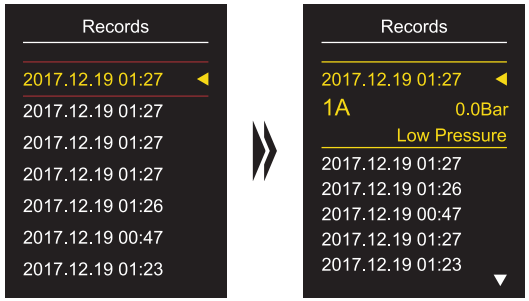
Follow the steps as below , you can double confirm the corresponding tire pressure position.

- In normal page, press " " button once to enter the tire temperature page.
  hold the "^" button for 3 seconds the "**Tractor**" icon flash to indicate that enter the tractor tire temperature
- position checking successfully.
  Or hold the "v" button for 3 seconds the "**Trailer**" icon flash to indicate that enter the trailer tire pressure
- position checking successfully.
  Press the "^" and "v" button to select individual sensor, and then press "**OK**" button to overlook the corresponding tire temperature position.

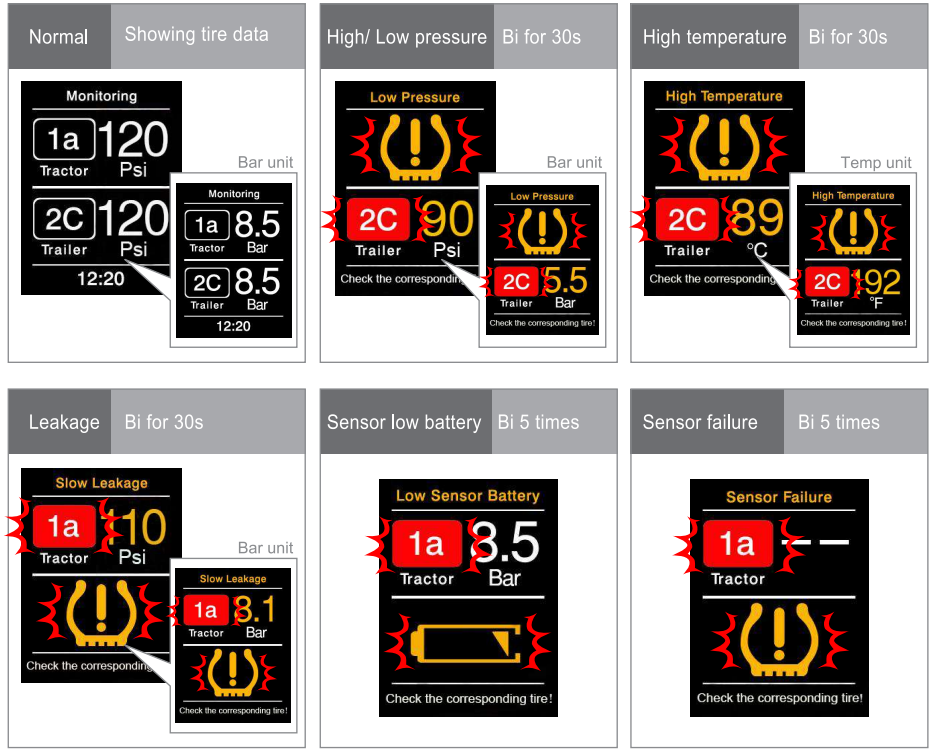


Warning records checking

Only 10 latest warning records will be shown



Different scenarios



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.

Notes:

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

Troubleshooting

1. **After sensor installation, air leakage happened**
   The tire valves may not be universal standard, please check from the local workshop
2. **Once the installation is done, there is no tire data shown on display**
   Make sure ACC is on
3. **Sensor lost**
   Please buy a new sensor
4. **Sensor battery is low**
   Please replace the battery of CR2050
5. **Location of tire changed**
   Please reprogram the corresponding sensors