

Think safety think Steelmate



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STEELMATE®
Automotive

TP-83E

TPMS for Truck

Tire Pressure Monitoring System



Manual

Contents

Disclaimer	01	Function setting	11
About the product	01	Setting page	12
Important notice	01	Tractor sensor programming	16
Key features	01	Trailer sensor programming	19
Specifications	02	Corresponding tire pressure position checking.....	22
Brief look of display	02	Corresponding tire temperature position checking---	23
Includes	03	Warning records checking	24
Display holding	04	Different scenarios	25
Display and antenna wiring	05	Troubleshooting	26
Repeater installation	06	FCC warning statement	27
Sensor position	06		
Sensor installation	07		
Sensor battery replacement	08		
Repeater pairing	09		
Functional test after installation	09		
General monitoring interface	10		
ON/ OFF display	10		

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.

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.

Important notice

1. Whenever the location of tire changed, the sensors must be changed to the corresponding tire.
2. The sensor battery life 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 DC 12V or DC 24V power supply system 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.

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 supply
- Real-time monitoring tire data

Specifications

Sensor:

Operating frequency: $433.92 \pm 0.05\text{MHz}$
 Operating voltage: $2.1\sim 3.3\text{V}$
 Operating temperature: $-40\sim +105^{\circ}\text{C}$ / $-40\sim +221^{\circ}\text{F}$
 Pressure range: $0\sim 14\text{Bar}$ / $0\sim 203\text{PSI}$
 Pressure accuracy: $\pm 0.2\text{Bar}$ / $\pm 3\text{PSI}$
 Temperature accuracy: $\pm 3^{\circ}\text{C}$

Display:

Operating frequency: $433.92 \pm 0.05\text{MHz}$
 Operating voltage: $9\sim 28\text{V}$
 Operating current: $\leq 40\text{mA}$
 Operating temperature: $-20\sim +70^{\circ}\text{C}$ / $-4\sim +158^{\circ}\text{F}$
 Storage temperature: $-40\sim +90^{\circ}\text{C}$ / $-40\sim +194^{\circ}\text{F}$

Repeater:

Operating voltage: $9\sim 28\text{V}$
 Operating current: $\leq 85\text{mA}$
 Operating temperature: $-20\sim +85^{\circ}\text{C}$ / $-4\sim +158^{\circ}\text{F}$
 Storage temperature: $-40\sim +125^{\circ}\text{C}$ / $-40\sim +257^{\circ}\text{F}$

Default value:

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

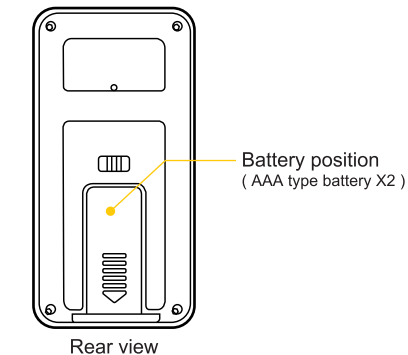
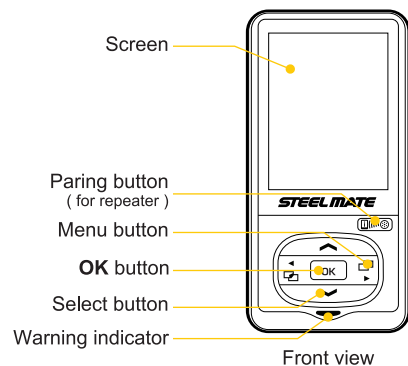
Adjustable value:

High pressure value: $4.0\sim 13.9\text{Bar}$ / $58\sim 202\text{PSI}$
 Low pressure value: $1.0\sim 9.0\text{Bar}$ / $15\sim 130\text{PSI}$
 High temperature value: $70\sim 99^{\circ}\text{C}$ / $158\sim 210^{\circ}\text{F}$

Air pressure unit

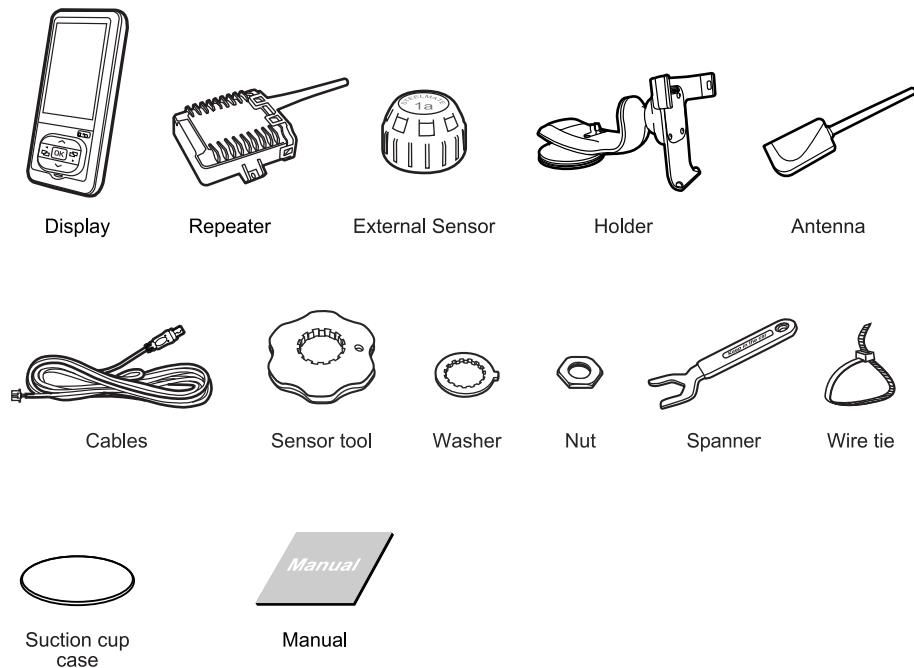
$1\text{ Bar} = 14.5\text{ PSI} = 100\text{K Pa} = 1.02\text{ Kg/cm}^2$

Brief look of display



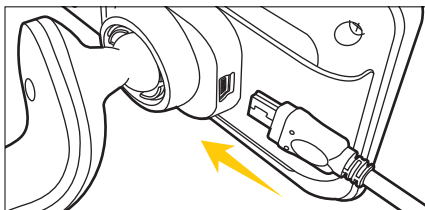
Note: The AAA type batteries are only used for sensor programming mode. Please remove the batteries on display once sensors programming is completed.

Includes

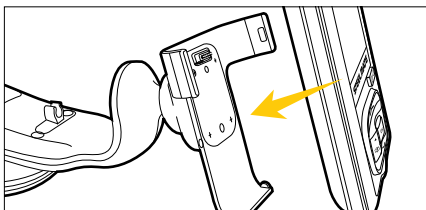


※ The above graphics are for reference only

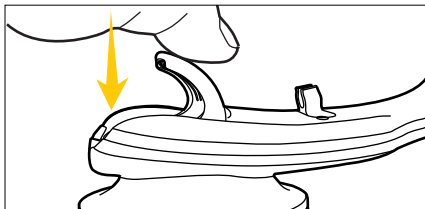
Display holding



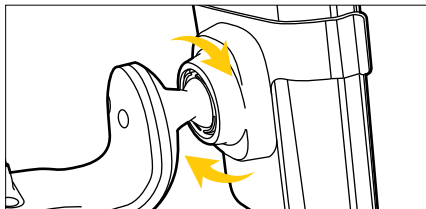
1. Plug the power cable into holder



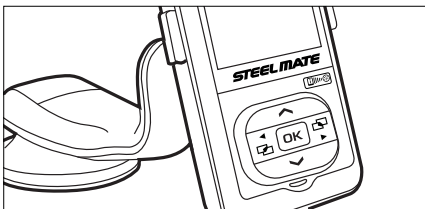
2. Fit the display on holder



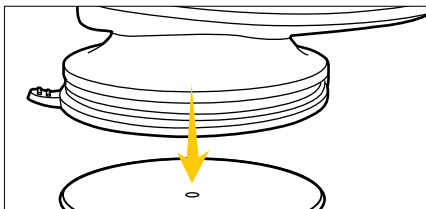
3. Plug the suction cup to hold the display steady



4. Rotating the ball joint to make a suitable viewing angles

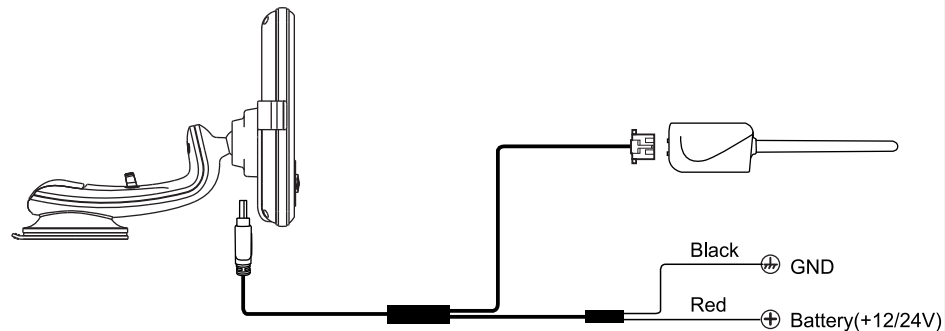


5. Installation completed



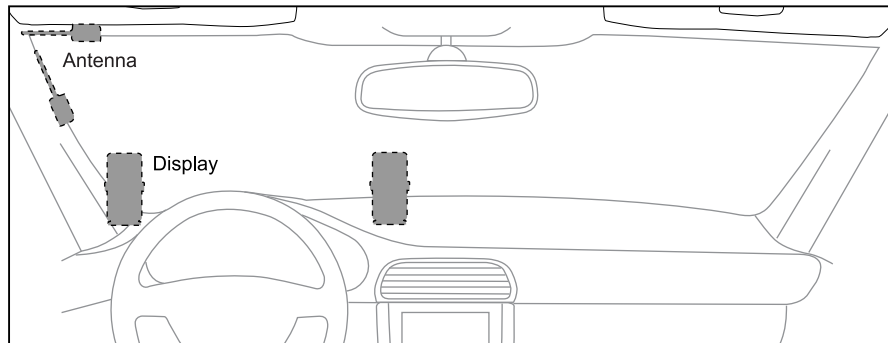
6. If the suction cup not stick as well to the dashboard, you can place the suction cup case under it

Display & antenna wiring



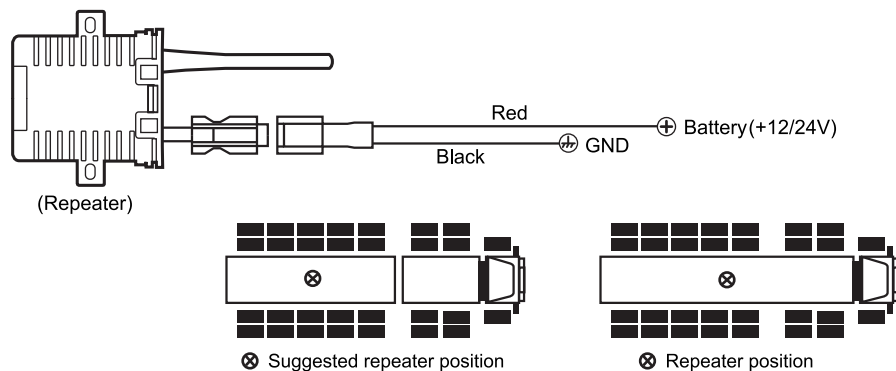
Notes: The above graphics are for reference only

Display installation



Notes: The recommended position as above

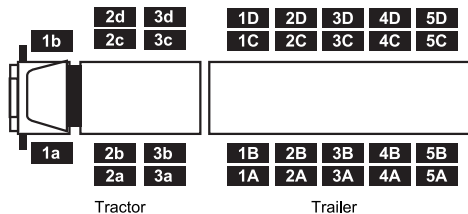
Repeater installation



Notes:

1. Don't install the repeater in the front of the trailer.
2. Put the connector at the place where the trailer is connected to the tractor, it's convenient for drive separate and disassemble the tractor and trailer.
3. Repeater should be fixed by screw or wire tie.

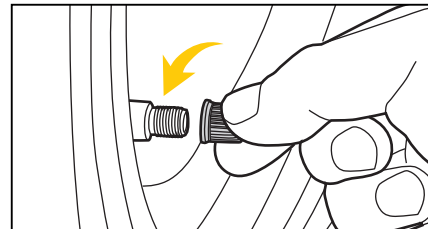
Sensor position



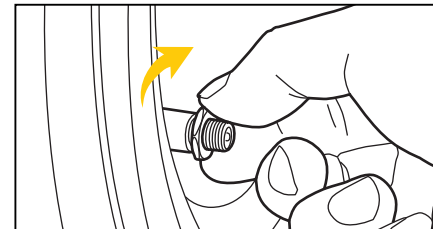
Note: Please install the sensor follow the corresponding tire position on the left.

Sensor installation

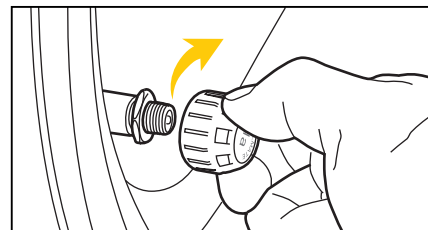
Please install all sensor before using this system, all sensors are pre-programmed in factory.



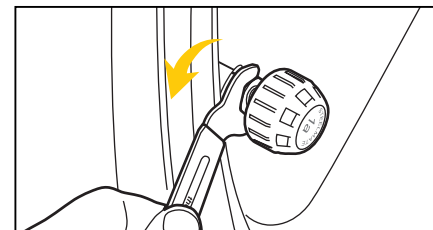
1. Unscrew the valve cap



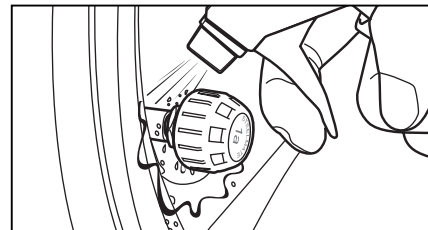
2. Screw in the nut



3. Screw on the sensor



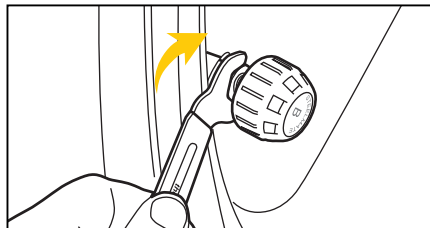
4. Tighten up the nut to the sensor by using the spanner



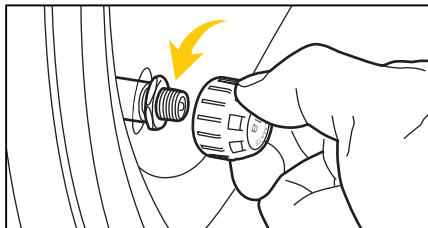
5. Check air leakage by spraying soapy water

Sensor battery replacement

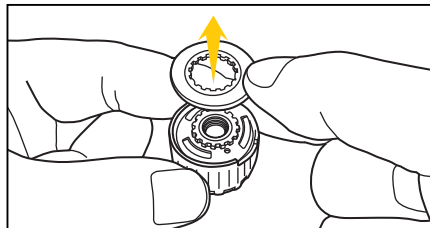
Once the sensor is run out of battery, please follow the steps to replace the battery as below.



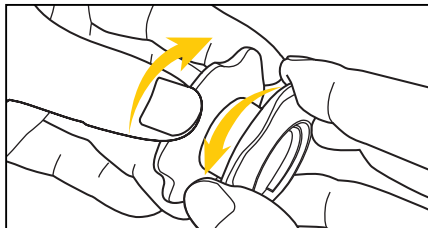
1. Unscrew the nut



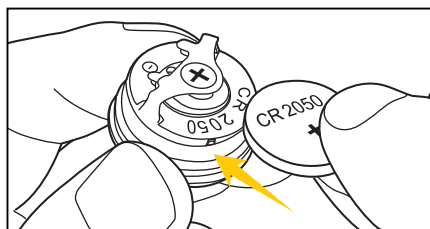
2. Unscrew the sensor



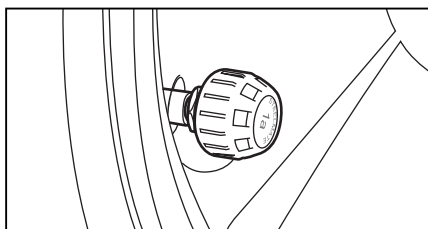
3. Remove the washer



4. Unscrew the sensor cover by using the sensor tool



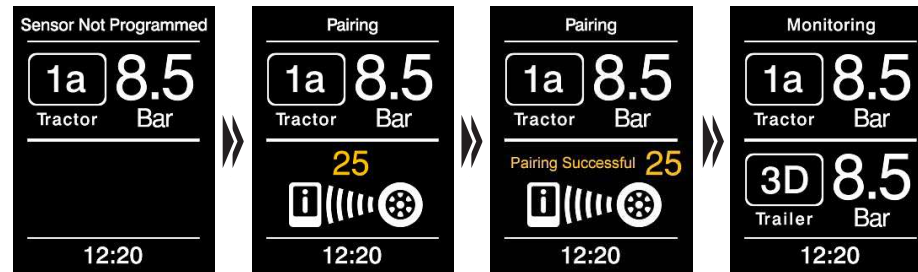
5. Replace the battery



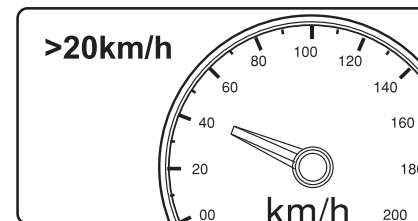
6. Follow the "sensor installation" steps to install the sensor

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 display 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 pic. as below.
- In abnormal tire status, the display will "Bi-Bi-Bi" for 5 seconds every minute, until the tire problem is fixed.

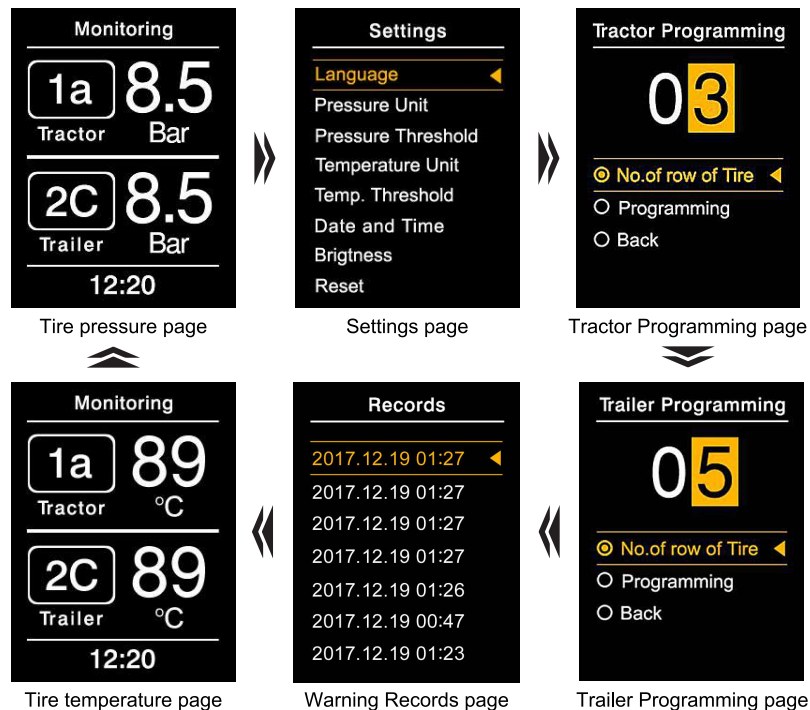


ON/ OFF display

Once ACC is on, if not receive any 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, and no operation in 30seconds, the display will be turned off automatically.

Function setting

Once power is ON, press "←" or "→" button to select the function page.

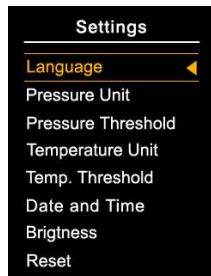


Note:

1. In each function page, the system will exit and return to Tire pressure page if there is no operation in 3 minutes.
2. The system will "Bi" twice to save and exit the setting mode.

Setting page

In Tire pressure page, press "☰" button once to enter to the setting page.



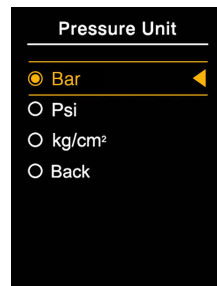
1. Language setting

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: 4.0~13.9Bar or 58~202PSI

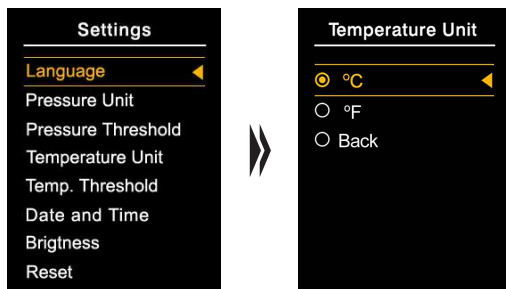
Default value: 10.0Bar or 145PSI

Min.pressure range: 1.0~9.0Bar or 15~130PSI

Default value: 7.0 Bar or 101 Psi

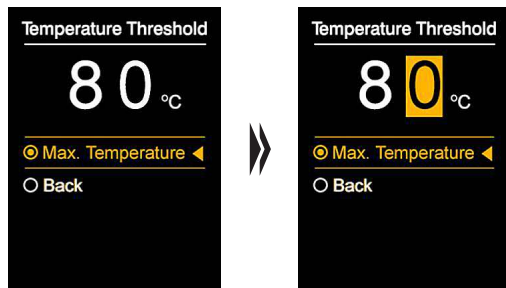
4. Temperature threshold setting

In Tire pressure page, press "⏏" button once to enter to the setting page. Press "▲" and "▼" button to select the Temperature Unit setting and press "OK" button to enter the selecting mode. Press "▲" and "▼" button to select temperature unit, and then press "OK" button to save and exit the setting mode.



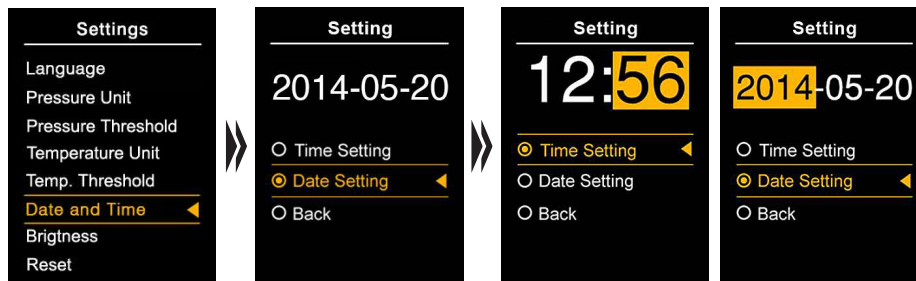
5. Max. temperature setting

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



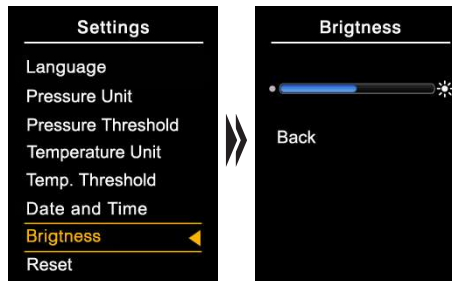
6. Date and time setting

In setting page, press "▲" and "▼" button to select and press "OK" button enter the date and time setting. Press "▲" and "▼" button to select time setting or date setting and press "OK" button enter adujstment mode. Then press "▲" and "▼" button to adjust the value and press "OK" button to save the value. After that press "⏏" exit the setting mode.



7. Brightness setting

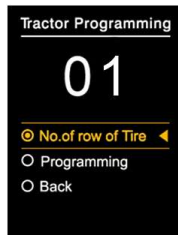
In setting page, press "▲" and "▼" button to select and press "OK" button enter the brightness setting. Press "▲" and "▼" button to adjust the brightness level, and then press "OK" button with "Bi" twice to save and exit the setting mode.



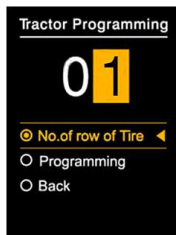
Tractor sensor programming

Once power is on, press " " button to select Tractor programming mode. press " " and " " to select No.of row of tire and then press "OK" button enter the tractor axles number selecting. Press " " and " " to select the tractor axle number and press "OK" to confirm.(Only 1-3 axles tractor can be selected)

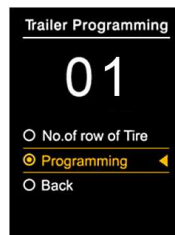
After that select Programming and press "OK" button to enter tractor sensor programming mode. Press " " and " " to select corresponding tire position, and then put the display near the corresponding tire (the distance within 5-10cm), press " " button once, the display LED indicator will turn on for 5 seconds, after 5 seconds the display will "Bi" twice and corresponding tire position icon will turn green to indicate that the tractor sensor is programmed; If the corresponding tire position icon not turn green to indicate that the tractor sensor is not programmed.



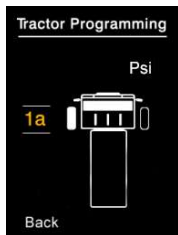
Select tractor axes number



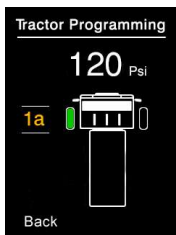
For 1-axle tractor



Enter tractor sensor programming

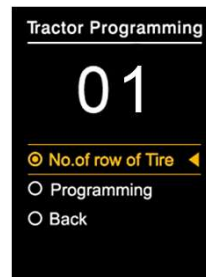


1a position selected

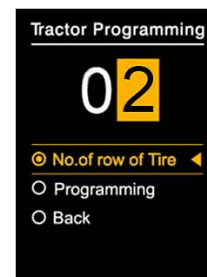


1a sensor is programming successfully

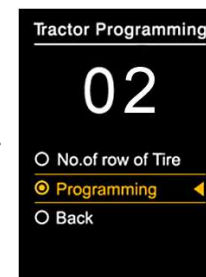
For 2-axle tractor:



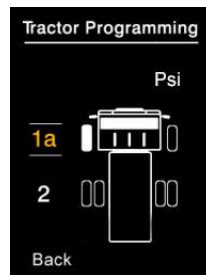
Select tractor axes number



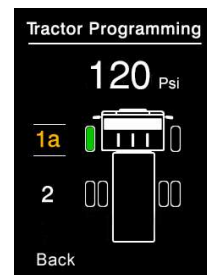
2-axle tractor selected



Enter tractor sensor programming

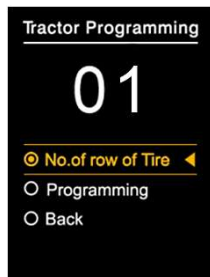


1a position selected

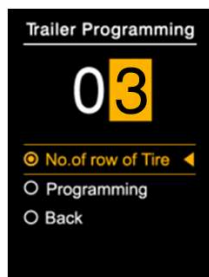


1a sensor is programming successfully

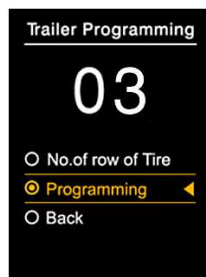
For 3-axle tractor:



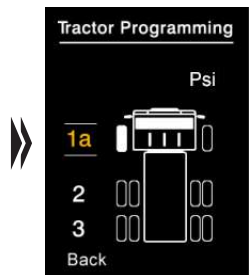
Select tractor axle number



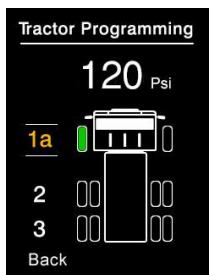
3-axle tractor selected



Enter tractor sensor programming



1a position selected

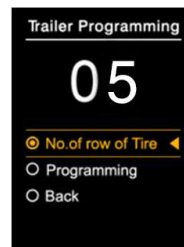


1a sensor is programming successfully

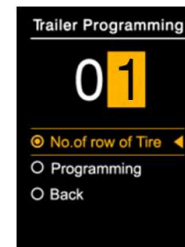
Trailer sensor programming

Once power is on, press " " button to select Trailer programming mode. press " " and " " to select No. of row of tire and then press "OK" button enter the trailer axles number selecting. Press " " and " " to select the trailer axles number and press "OK" to confirm. (Only 1-5 axles trailer can be selected)

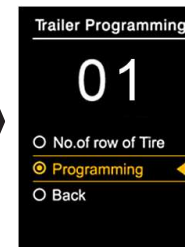
After that select Programming and press "OK" button to enter trailer sensor programming mode. Press " " and " " to select corresponding tire position, and then put the display near the corresponding tire (the distance within 5-10cm), press button once, the display LED indicator will turn on for 5 seconds, after 5 seconds the display will "Bi" twice and corresponding tire position icon will turn green to indicate that the tractor sensor is programmed; If the corresponding tire position icon not turn green to indicate that the tractor sensor is not programmed.



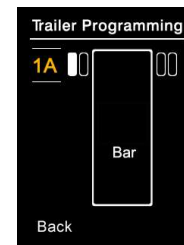
Select trailer axle number



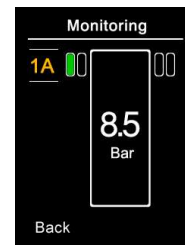
1-axle tractor selected



Enter trailer sensor programming



1A position selected



1A sensor is programming successfully

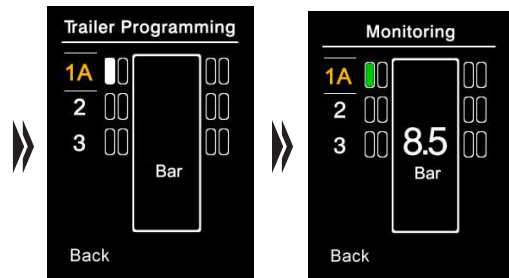
For 3-axle tractor:



Select trailer axles number

3-axle trailer selected

Enter trailer sensor programming



1A position selected

1A sensor is programming successfully

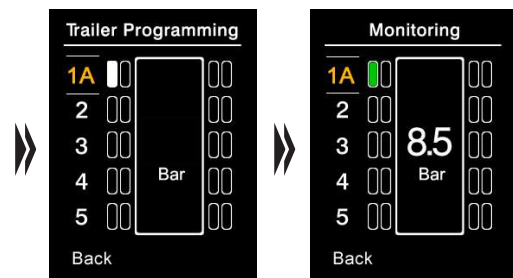
For 5-axle tractor:



Select trailer axles number

5-axle trailer selected

Enter trailer sensor programming



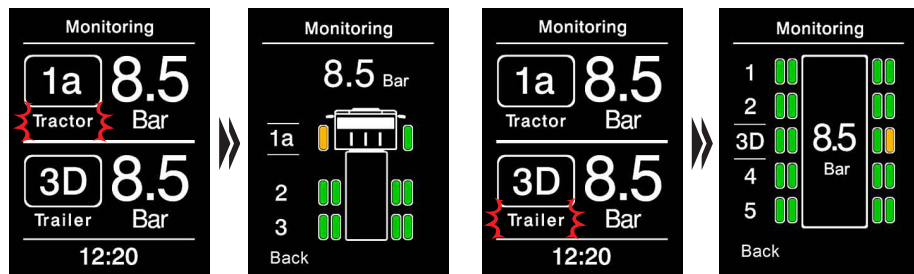
1A position selected

1A sensor is programming successfully

Corresponding tire pressure position checking

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

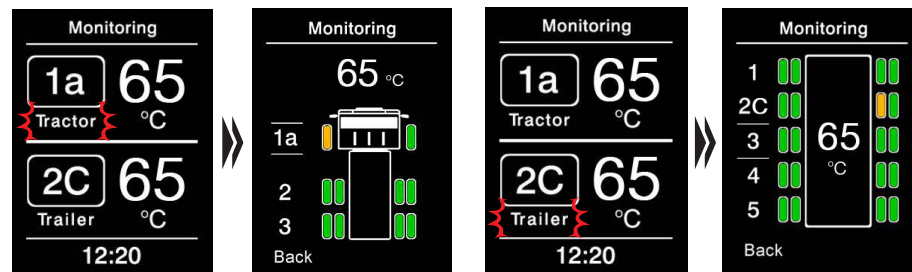
- In Tire pressure page, hold the "▲" button for 3 seconds the **"Tractor"** icon flash to indicate that enter the tractor tire position checking successfully.
- Or hold the "▼" button for 3 seconds the **"Trailer"** icon flash to indicate that enter the trailer tire position checking successfully.
- Press the "▲" and "▼" 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 temperature position.

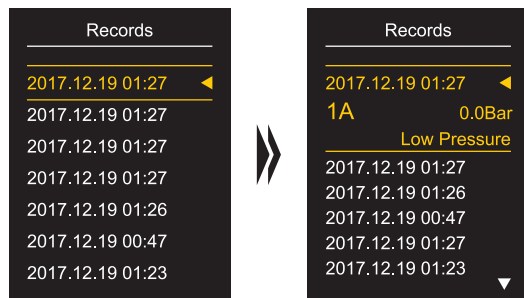
- In Tire pressure page, press "1" button once to enter the tire temperature page. hold the "▲" button for 3 seconds the **"Tractor"** icon flash to indicate that enter the tractor tire temperature position checking successfully.
- Or hold the "▼" button for 3 seconds the **"Trailer"** icon flash to indicate that enter the trailer tire pressure position checking successfully.
- Press the "▲" and "▼" button to select individual sensor, and then press "OK" button to overlook the corresponding tire temperature position.



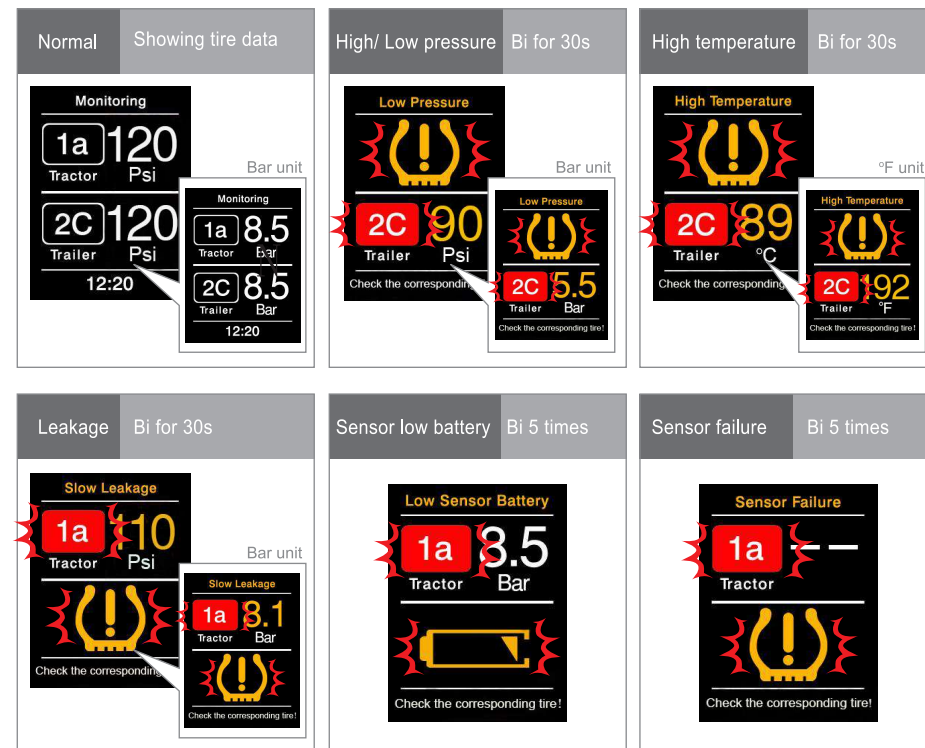
Warning records checking

In Tire pressure page, press "⏏" or "⏏" button to select warning records page. Press "⏏" and "⏏" to select, and press "OK" button to check the details.

Remark: Only 10 latest warning records will be shown on the display.



Different scenarios



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

The sensors or repeater not programmed to the display.

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

6. The display is not dormant

If there is no warning status occurs, the system will enter to sleep mode after flame out 8 minutes

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