TyrePal

A WSL COMPANY

TYRE PRESSURE MONITORING SYSTEMS

SOLAR

Tyre Pressure Monitoring System
TyrePal Solar

Innovative safety solutions for your peace of mind

TyrePal, Wheel Solutions Ltd, Unit 2 Upper Keys Business Park, Keys Park Road,
Hednesford, Cannock, Staffordshire, WS12 2GE
Tel: +44 (0) 1543 870190
Email: Enquiries@tyrepal.co.uk

CONTENTS

1. SYSTEMCONTENTS

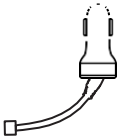
Monitor accessories

LCD Monitor

(1 pc)

USB Cable

(1 pc)



DC-DC Power

Adaptor (1 pc)

Sticky Pad

(1 pc)

Sensor accessories

TCSO/N Sensor

Sensor Tool
(1pair)

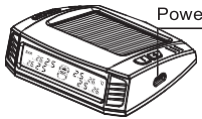
Hex Wrench
(1pc)

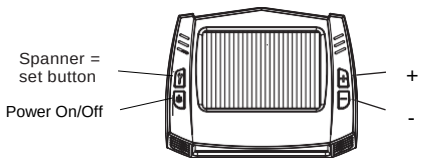
Hex Nut
(4pcs)

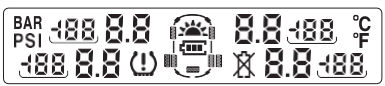
Rubber O-Ring
(4pcs)

Dust Shield
(4pcs)

2. MONITOR ICONS







Pressure unit: BAR or PSI, User-selectable
Temperature unit: ℃ or ℉, User-selectable

Icon	Description
	Tyre Position
	Sensor Low Battery
	Monitor Power Level
	Tyre Alarm Status
	Solar Power Indicator

3. IMPORTANT SAFETY NOTES

What to expect

Unless you have used this type of TPMS before, you will probably be unaware of what happens to your vehicles tyres whilst driving. The tyre pressure and temperature will naturally increase whilst you are driving your vehicle. This is completely normal and is taken into account when the tyres are designed and manufactured. With this system, you can program alert levels for low and high pressure and also temperature.

The system is used to monitor the pressure and temperature of each tyre. The system will give an alert if there is abnormal pressure and / or temperature, making the driver aware that something is outside of normal parameters. The system can also enhance fuel efficiency, prolong tyre life and make driving more comfortable. Be sure to read the user guide carefully before installation and keep the manual safe for future use.

It is highly recommended to read the instructions below before installing the system:

The monitor should be installed inside the vehicle where it does not affect normal driving.

It is your responsibility to ensure that it is suitable for your particular vehicle and that it is working correctly and properly maintained. Check the sensors and valve stems regularly, as some road salts can cause corrosion.

The system does not replace the need to carry out regular checks on the condition and wear of the tyres.

Keep the small parts and especially the batteries out of the reach of children. If a battery is swallowed, consult a doctor or visit your nearest hospital. Do not hold a battery with metallic tweezers as this will cause a short circuit and may lead to burning or explosion of the battery.

Do not alter the monitor while driving, if an alert sounds pull over when safe to do so.

It is not normally necessary to turn the monitor off. It has an inbuilt motion detector that automatically puts it into sleep mode when no movement is detected for 10 minutes, and when an external DC power source is not connected.

Normally, and provided there is some charge in the battery, the monitor will wake up when it senses movement or vibration such as the opening or closing of the car door. If it doesn't wake up, press any button to wake the monitor from sleep mode. If you are not using the monitor for long periods though, turn it off before storing.

The sensors themselves also have inbuilt motion detectors that will put them into sleep mode when no movement is detected for 10 minutes, this is to save the battery life. When the vehicle starts moving, the sensors will wake up in a few yards and refresh the data on the monitor.

4. BEFORE INSTALLATION

Before installing the system, ensure that it is suitable for your vehicle. It will also be necessary to fit the batteries provided into the sensors. See section 6 for instructions.

- The operating pressure of your tyre must be within the range of the system. i.e 0-6.8bar(0-99psi).
- Check that tyre valve stems are in good condition before fitting the sensors.
- Do not fit sensors to tyres that have been treated with internal tyre sealant. The sealant may damage the sensor or impair its functions.
- New nickel plating on the thread of the sensor means you can use this system on aluminium valves
- To avoid danger of damaging the sensors, check that sensor valve caps will not protrude excessively beyond the outside profile of the tyres when fitted.

4.1 Wheel Balancing

The weight of the sensors is within the tolerance normally achieved for wheel balancing, so there is usually no need for the wheel to be rebalanced after installing the system. If vibration is felt at the wheel when driving at speed after fitting the system, the wheels must be rebalanced.

4.2 Charging the monitor

The solar panel on the monitor will keep the internal battery charged as long as there is sufficient sunlight available. Should the battery charge level become low, recharge with the supplied DC charger (approximately 2.5 hours of charge will replenish the battery). Do not leave the monitor on charge for long periods of time as this may damage the battery.

4.3 Monitor Mounting

A re-useable sticky pad is provided for mounting the monitor. Just place the sticky pad on a clean flat surface and position the monitor on top. Choose a position for the monitor to be located where it can be seen by the driver without interrupting the view of the road. For security, it can be removed and hidden while the vehicle is unattended. The pad can be removed and repositioned without leaving any sticky residue and can be washed in warm water if it gets dusty and loses its stickiness.

4.4 Turning on and off

To turn on press and hold the power button until it beeps. It is not normally necessary to turn the monitor off as it has an inbuilt motion detector that automatically puts it into sleep mode when no movement is detected for 10 minutes, and when an external DC power source is not connected. To turn off manually press and hold the power button until it beeps.

4.5 Tyre Pressures and alert levels

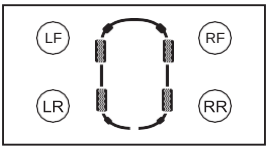
The following alert levels are suggested, based on the vehicle manufacturer's recommended tyre pressures:

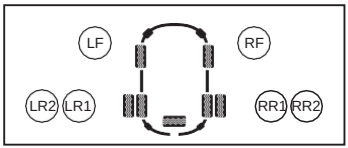
High pressure alert level	20-25% above recommended pressure
Low pressure alert level	15% below recommended pressure
High temperature alert level	70ºC (factory default)

5. SENSOR INSTALLATION

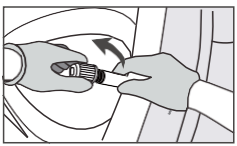
The sensors are pre-registered to the monitor and labelled with the appropriate tyre position. LF, LR, RF, RR, for 4 tyres. It's highly recommended to install the sensor on the correct wheels You can add sensors if required, using positions LR2, RR2 and the spare wheel.

Note: Install the sensors to the appropriate tyres.

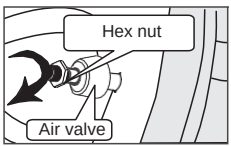




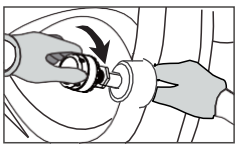
Ensure the monitor is turned on before installing the sensors so that the monitor can wake up



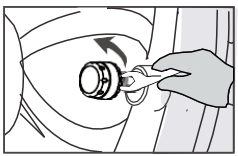
1. Unscrew the valve cap



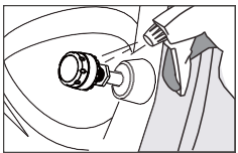
2. Mount dust shield onto valve and turn inside out Fit hex nut onto valve.



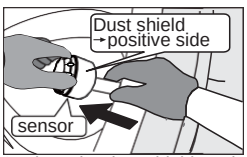
3. Screw the sensor onto the valve



4. Tighten the nut with spanner provided



5. Check air leakage by spraying soapy water



6. Place the dust shield on the hex nut and sensor.

Tips:

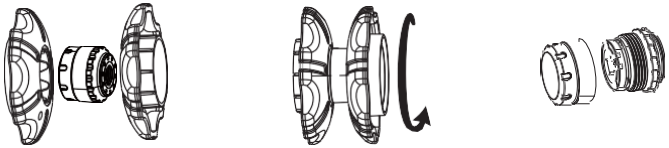
1. If battery inside the sensor has insufficient voltage, it will trigger a low battery alarm
2. After all sensors have been installed, ensure there is no air leakage - use soapy water for testing if necessary, to check for air bubbles on the valve stem.

6. SENSOR BATTERY FITMENT / REPLACEMENT

When the sensor low battery icon is displayed, shows on the monitor and corresponding tyre icon is flashing, the sensor battery needs replacing. A CR1632 battery for TCSO/N, which operates at -20ºC to 80ºC, is recommended. You can buy replacement batteries from the TyrePal website.

Before installing the system on your vehicle it will also be necessary to fit a battery into each sensor. Please follow the instructions below.

1. Unscrew the sensor battery cover using the sensor tool provided.



2. If replacing the battery, please remove the battery from battery holder.

3. Fit the new lithium battery. Ensure positive "+" is facing upwards.

"-" CR1632 Lithium Battery

"+" CR1632 Lithium Battery

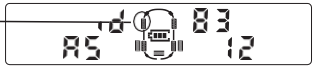
4. Replace the sensor battery cover using the sensor tool. Check that the rubber O-ring is in good condition first though, otherwise replace with a new one.
Note: there is an O-ring installed on every new sensor - the additional ones in the pack are spares

7. REGISTERING SENSORS

The system comes with 4 sensors pre-registered to appropriate wheel positions on the monitor. There is no need to register these again. If additional sensors are required, they can be registered / coded to the required wheel position using the following instructions. (The monitor can accept up to 7 sensors in total – including the spare wheel)

In standby mode, press and hold the (+) button and release it after the beep sound to enter coding mode. The front left tyre icon will flash on the screen and if a sensor is coded to that position, you will see the sensor ID code. If no sensor is coded to that wheel position, you will see a series of dashes. To select a required wheel position to code a sensor to, scroll through those available by pressing and releasing the (+) or (-) buttons. Once you have the required wheel position flashing on screen, mount the sensor onto the tyre valve. When the sensor picks up the pressure of that tyre, it will send its own ID code to the monitor which will beep. Next, you can use the (+) or (–) buttons to scroll round to the next required wheel position and repeat the sensor coding process. When you have coded all required sensors, press and hold the spanner button until you hear a beep sound. This locks the sensor id's into the memory. If you do not wish to store the new sensor data, press "+" and "SET" buttons together. The monitor will not store any new ID's and will return to standby mode.

Example tyre icon flashing



Left Front Tyre ID 83A512

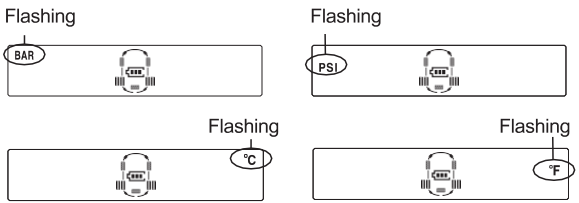
7.1 SETTINGS MODE

The settings mode is used to set the units for display and the alert levels.

- Press the spanner button and hold it until you hear the beep
- Press and release the spanner button repeatedly to scroll through the settings options
- Press the UP (+) or DOWN (-) button to adjust the parameters.
- When satisfied that you have the settings correct, press and hold the spanner button for three to four seconds. The system saves the settings and returns to standby mode
- If no action is taken for one minute, the monitor returns to standby mode without saving any changes.

7.2 Set units

- From Standby mode, press and hold the spanner button until it bleeps, to enter settings mode
- When the PSI or Bar icon flashes, press the UP (+) or DOWN (-) button to switch between PSI or BAR
- Press and release the spanner button to move on to temperature units
- When the ºC or ºF icon flashes, press the UP (+) or DOWN (-) button to switch between ºC or ºF
- Press and release the spanner button to move on to the alert levels



7.3 Set alert levels

- For recommended alert levels, see Section 4.5

- In settings mode, scroll through the pressure and temperature settings until the wheels for the front axle are flashing.

- Press the UP (+) or DOWN (-) button to adjust the high pressure alert setting.

- Press and release the spanner button to move on and set the low pressure alert level, using the UP (+) or DOWN (-) buttons.

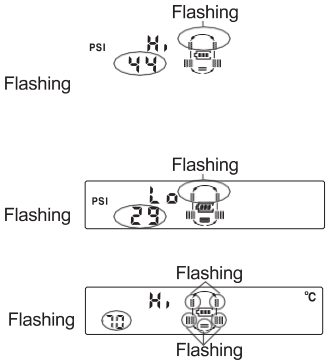
- Press and release the spanner button again to move on to the rear axle pressure settings and adjust them with the UP (+) or DOWN (-) buttons

- Press and release the spanner button again to move on to the spare tyre pressure settings and adjust them with the UP (+) or DOWN (-) buttons. This can be left at the factory default if the spare is not being monitored

- Press and release the spanner button again to move on to the high temperature alert level that applies to all the tyres, (this can conveniently be left at the factory default of 70ºC)

- Finally press and hold the spanner button for three to four seconds until you hear the beep. The system saves the settings and returns to standby mode.

- For the six-tyre version, the rear axle settings apply to all four rear tyres.



Note: If no action is taken for one minute, the monitor returns to standby mode without saving any changes.

7.4 Normal display

In normal display, the tyre pressures and temperatures are displayed on the monitor.
Note that the reading is not instantaneous, but is the value stored in the monitor which is updated every six seconds. If two extra sensors have been registered to the system, the monitor will show the extra two sensors on a second screen, alternating between the two screens.

8. WARNINGS AND ALERTS

In the event of an abnormality, an alert is given as follows

- Audible alarm
- Red light flashes
- The corresponding icon on the monitor blinks

You can press any button on the monitor to silence the alarm, but the red light will continue to flash and the icon will continue to blink until the problem has been corrected.

8.1 Low battery warnings

If the monitor battery is low, the monitor battery icon will change from full to empty. Plug in to charge the battery and the icon becomes animated to show the charging in process.

If a sensor battery is low, the sensor battery icon blinks, together with the appropriate tyre icon. The sensor battery must then be replaced.
They are available on-line from our TyrePal shop.

9. ALARM CONDITION

High / Low Pressure Alert / High Temperature Alert / Fast Leakage Alert / Sensor Low Battery Alert

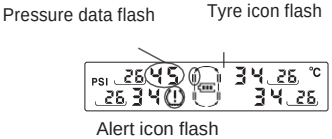
The monitor displays the temperature and the pressure data of four sensors simultaneously. The corresponding alert icon and red LED will flash together with a warning beep when the sensor detects abnormal conditions from the tyre. The faulty tyre and/or battery alarm (⏻ ⛒) icons will continue to flash until the problem has been resolved.

Factory default setting

High pressure alarm level	44PSI (3.0BAR)
Low pressure alarm level	29PSI (2.0 BAR)
High temperature ºC alarm level	70ºC

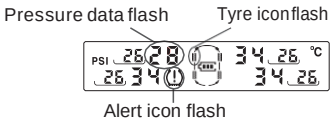
9.1 High pressure alert

If the front left tyre pressure is 45PSI, the monitor will alert together with a warning beep and the red LED will flash.



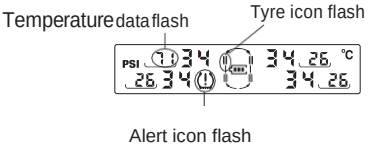
9.2 Low pressure alert

If the front left tyre pressure is 28PSI, the monitor will alert together with a warning beep and the red LED will flash.



9.3 High temperature alert

If the front left tyre temperature is 71ºC the monitor will alert together with a warning beep, and the red LED will flash

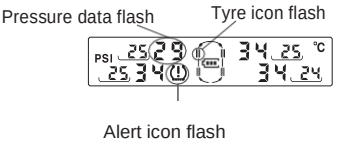


9.4 Fast leakage alert

The sensor will send an alert to the monitor if it detects fast leakage in a tyre. The alert icon and the pressure data will flash together with the tyre icon and the red warning light will flash along and the alarm will beep.

Press any button to turn off the beep warning. The alert tyre icon and the pressure data will still flash together with the red LED until the problem has been solved.

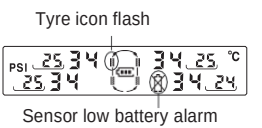
If the front left tyre pressure drops from 34PSI to 29PSI immediately, the monitor will alert as shown below.



9.5 Sensor low battery alert

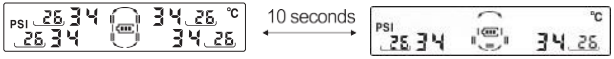
If the sensor battery voltage is low, the sensor will send an alert to the monitor. The corresponding tyre icon and the low battery icon will flash together with the red LED and the monitor will beep. Press any button to turn off the warning beep, but the tyre icon and the low battery icon will still flash together with the red LED until a new sensor battery has been replaced.

If the battery in the front left tyre sensor is low, the monitor will alert as the picture below.



10. OTHER FUNCTIONS

Monitor can display up to 7 tyres (including spare tyre) 7 sensors (for motorhome): displays as below



11. TECHNICAL SPECIFICATION

11.1 Monitor Specification

Pressure setting range	16-99PSI (1.0-9.9BAR)	Temperature setting range	-20ºC ~ 93ºC (77ºF ~ 199ºF)
Working Temperature	-20ºC ~ 80ºC	Frequency	433.92MHz
Storage Temperature	-30ºC ~ 85ºC	Size	84 (L) * 66 (W) * 23 (H)mm
Output voltage / current	DC 5V/1A	Weight	82 g

11.2 Sensor Specification

Working Temperature	-20ºC ~ +80ºC
Storage Temperature	-20ºC ~ +85ºC
Pressure range	0~99 PSI 0~6.8 BAR
Pressure accuracy	1.5 PSI (± 0.1BAR)
Temperature accuracy	± 3ºC
Transmission power	<10dBm
Transmission frequency	433.92MHz
Battery life	18 months
Dimension	21 Φ X17.5 (H) mm
Weight	12 g

1. Use the system correctly following all instructions. The distributor is not liable for damages arising from misuse of the product.

2. Follow the installation guides. If any damage is caused by incorrect installation, this is not the responsibility of the distributor.

3. The contents and specification are subject to change without prior notice. Pictures in this manual are for illustration purposes only.

4. Care should be taken to avoid damaging the sensor during tyre removal.

5. Sensors may need to be removed from time to time to ensure they are clean, and road dirt is not collecting around the valve thread.

12. MANAGING TYRE PRESSURES

The recommended tyre pressures are given in the vehicle handbook and are designed to give the best balance between comfort, road-holding and fuel economy for a given vehicle. The side-wall of the tyre is embossed with the maximum pressure for the tyre. This is NOT the recommended service pressure.

Under-inflated tyres have a greater rolling resistance, so they waste fuel and wear faster. Driving on tyres below a critical inflation pressure can cause a blow-out, and can damage wheel rims because the tyres are no longer supporting the vehicle. Over-inflation reduces grip and causes uneven wear.

12.1 Effect of temperature

Tyre pressures are specified for cold tyres, but the tyres warm up when driving, and the pressure increases by about 10% in normal service. Tyres should therefore be inflated to the recommended level before they are heated by driving. In winter, tyre pressures fall due to lower temperatures and additional air is required to bring them to the manufacturer's recommended level. If a tyre overheats, it may blow out or cause permanent damage to the sidewall.

12.2 Service and warranty

Please register your warranty by completing details on our website. The system is warranted to be free from manufacturing defects and is guaranteed for a period of twelve months from date of purchase. There are no user-serviceable parts inside and if internal parts have been tampered with the warranty will be void. The warranty does not affect your statutory rights.

TyrePal
A WSL COMPANY
TYRE PRESSURE MONITORING SYSTEMS

TyrePal Limited
Wheel Solutions Limited
Unit 2 Upper Keys Business Park
Keys Park Road
Hednesford, Cannock
Staffordshire
WS12 2GE
Tel: +44 (0) 1543 870190
Email: Enquiries@tyrepal.co.uk

Implementation Standard: Q/YAT001-2017