Performance Under Pressure

INSTRUCTIONS FOR HD, TPMS SYSTEMS
Version 1.1CD24/10/11
Thank you for your purchase of our ***Pressure Track HD***, TPMS system
We recommend that you print a copy of these instructions and carry them in your vehicle for reference.
Using replaceable CR1632 sensor batteries, the system measure pressures as well as tire temperatures

This monitor can handle up to 22 sensors up to 140psi with each wheel set at a different pressure if needed
These instructions are for systems operating Monitor to Sensor distances of up to 30 feet. The addition of a HawksHead Signal Booster should be used for longer vehicles or where the sensor signal is shielded by vehicle bodywork etc. Please contact HawksHead or your local dealer to purchase the Signal Booster or extra sensors.

INTRODUCTION

This Tire Monitoring System monitors the tire's air pressure and temperature. It consists of external tire air pressure sensors that screw onto your tire valves and hand-held or mounted monitor.

Simply screwed onto the tire valve, the external sensor is used to monitor the air pressure and temperature inside the tire, and then wirelessly send this information to the monitor in real time

The pressure sensor regularly measures the tire's air pressure, temperature and sensor battery voltage.

The monitor indicates the condition of each tire by graphics on the screen. Data for each tires pressure & temperature can be scrolled through on the screen for every wheel. The system has many functions of visual warnings and audible alarms to notify the operator of the systems status, pending and actual tire pressure and temperature changes that can have an effect on the vehicles safe operation.

SENSOR BATTERY INSTALLATION
The standard battery model is the supplied CR1632
Polarity of the battery is critical.

Unscrew the black sensor cover counter clockwise from the sensor.
This will allow entry of the battery into the sensor antenna
Slide the battery into the sensor antenna, ensuring the + positive terminal side is outmost facing towards the removed black sensor cover.
Replace the black sensor cover securely (Hand Tighten)

After installing the batteries proceed through the pressure set up process before installing the sensors in the alignment mode.
The battery may have to be re installed again if you get any errors in alignment.
When removing sensors for storage, remove the battery & mark each sensor so it can be replaced on the same wheel it was removed from. Do not screw any sensors on the tires at this time. Weighing only 9 grams they are one of the smallest sensors available which offers less flex on rubber valve stems.

VEHICLE
PRESSURE SET UP
It is now time to determine your vehicle tire pressure settings. This should be determined by consulting your owner's manual for the vehicle. The tires pressures should be set when the tires are cool, out of the sun and the vehicle has not been driven for at least 1hr. This will ensure changes caused by heat and vehicle operation will not affect your true pressure readings. A good quality digital tire gauge is recommended for initial settings. Our sensors tend to be more accurate than most gauges and we test them with temperature compensated gauges and dry Nitrogen. When comparing pressures the sensor should be refreshed by setting off the fast leak alarm

SYSTEM SETUP
The monitor has low battery alarm, and multi position windshield bracket mounting options and can be carried around the vehicle for ease of system set up and changes. The monitor comes with an environmentally conscious **12 volt reduced to 5 volts DC, ROHS vehicle lighter cord** which is used for recharging the internal rechargeable Lithium power pack. Mount the monitor out of any direct heat or sun. The Monitor has a motion sensor that shuts the monitor off when there is no motion to save battery power.
When fully charged the monitor battery will last for around 2 weeks. (Charge monitor for 8 hrs prior to starting)

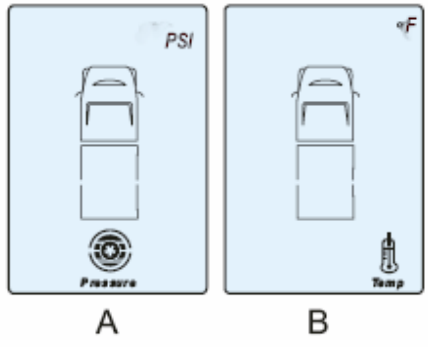
The monitor has *3 control buttons*. The *Centre* button is the ***SET*** button. The *Left* button is the ***UP*** button and the *Right* button is the ***DOWN*** button.
A motion sensor switches the monitor off when there is no motion after 15 minutes to save the monitor battery and activates on any movement. Sensors are active all the time when under pressure.

TURNING ON & OFF
Press the **SET** button and the monitor will power up

Should you wish to shut the monitor off, Hold down the **SET** button for 8 seconds, ignore any beeps or screen changes as it passes through the Pressure Setting Mode and turns off completely. If you have a (NON FLASHING) Green or Red Light showing you are in alignment mode. You need first to get out of this mode by holding down the **UP** & **DOWN** button together until it beeps to get out of this mode before shut down can be activated.

PRESSURE SETTING MODE
The system offers pressure settings in PSI, Bar, kPA, kgf/cm² and temperature in ºC & ºF . Setting the calibration, PSI, and either º F or º C are the most common in North America
Once the monitor is switched on
Press the **SET** button for **5 seconds** and the monitor will beep and enter the **PRESSURE SETTING MODE** (as diagram below

The monitor will flash the front left tire position. Press the **SET** button 22 times to scroll through all 22 tire positions, then watch the pressure icon in the top right of the screen this will flash allowing you to change the pressure calibration type (PSI/BAR etc) by pressing the **UP** or **DOWN** buttons. (As diagram A&B)



Then press the **SET** button to switch to temperature type, (degrees F or C) change by pressing **UP** or **DOWN** buttons. Then press **SET** again to finalize your calibration type and return to the **SETTING MODE** with the front left wheel flashing.

The front left wheel should be still flashing on the monitor. Press either the **UP** or **DOWN** button to set that wheels desired normal operating pressure. (Factory default is 72.4 psi). When the desired pressure is reached press the **SET** button, The monitor wheel icon will then move to the right front wheel and be flashing, again using the **UP** or **DOWN** button set the desired pressure and press the **SET** button. Continue setting each desired wheel position pressure in the same manner to the pressure needed.

You may not wish to use a particular wheel or axle on the display to show your configuration. These can be bypassed without setting any pressure as no sensor will be located in those positions. Your final screen when setup is completed will only show the sensors installed.

The number of wheel positions depends on the number of sensors to be used. When all desired pressure settings have been made press and hold the **SET** button for **5 seconds**, the monitor will then beep the screen will move to the next wheel, (KEEP YOUR FINGER ON THE BUTTON) the screen will darken and the monitor will enter the **STANDBYE** mode.

SENSOR ALIGNMENT & INSTALLATION

The sensor simply screws onto the tire valve (Dill Valve) it is critical that the complete valve be in good condition with no cracks, be correctly assembled with no wear or side play. Metal valve stems are preferred over rubber. The sensor should be finger tight and no tools used in its tightening. Use a small amount of lubrication/anti seize on Aluminum stem threads ensure none enters the Sensor or valve. A water/soap solution should be applied to the valve thread area after installation to ensure there are no air leaks. Most wheels do not need to be rebalanced after sensor installation.

Alignment problems can be caused by incorrect size or bent internal valve actuators or valves torqued too tight, or left too loose in the stem. Any issues aligning sensors on tire valve extenders should be resolved by testing the sensor on a valve with no extender.

GETTING INTO THE ALIGNMENT MODE

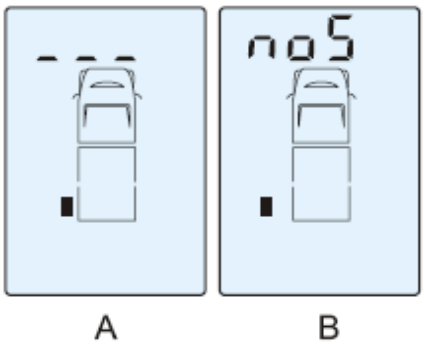
After all wheels have been inflated to their correct pressures in the previous Pressure set up. Press the **UP** and **DOWN** buttons on the monitor both at the same time for 2-3 seconds. The monitor will beep and the **Red warning light** will now be displayed and the left front wheel sensor position to be aligned will flash. Install a sensor on the left front wheel to be aligned. The monitor should then show the **Green warning light** and display the aligned wheels tire pressure on the monitor. This means that this wheel has been detected and is correctly aligned, should the **Red warning light** still be displayed the sensor is not aligned correctly. If the light fails to turn to Green remove the sensor wait for 15 seconds and try again. Make sure the valve inside the stem is not over tightened too much or bent to operate the sensor.

Press the **DOWN** button to scroll to the next wheel position and the **Red warning light** will be displayed and the wheel position to be aligned will flash. Install the sensor for this wheel and the **Green warning light** and wheel pressure will be displayed. Continue with this method until all wheel positions being used are aligned with sensors.

To delete a sensor press the **SET** button while in the alignment mode on that wheel position that shows a Green light. The Monitor should beep and the Green Light turn to Red showing the sensor has been deleted. **To add or remove additional sensors at a later date**, delete all existing sensors and set up from the start.

After all sensors are aligned press the **UP** and **DOWN** buttons together to go back to the **STANDBYE** mode. The **STANDBYE** mode is the normal system operating mode and will show the aligned wheels on the display along with pressures and temperatures. The UP and DOWN buttons enable scrolling through each wheel, the monitor will darken showing the wheel icons where a sensor is installed when no buttons are pressed or there are no alarms.

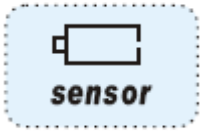
If you get a red flashing alarm light after finishing alignment, make sure you have not screwed a sensor on to a wheel position that you are not using on the monitor, perhaps the wrong dual wheel or axle, also check the pressure you set on that wheel on the monitor it may be incorrect.

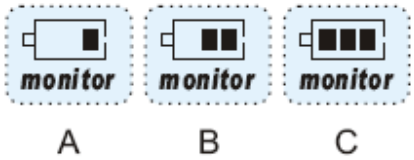


PLEASE NOTE, Upon restarting the system it may take up to 4 minutes for all sensors to be detected by the system. Wheels with no sensors will be displayed as A and wheels with sensors and no signal will show as B. The sliding monitor antenna can improve signal reception if needed.

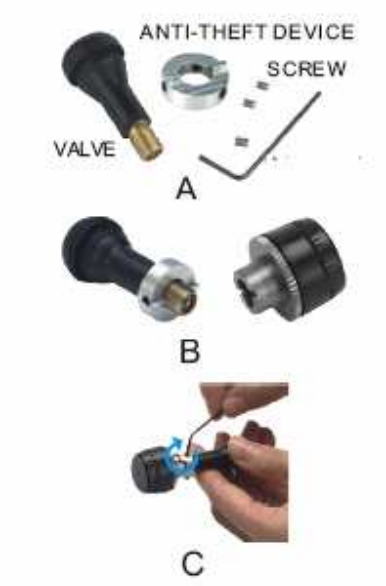
BATTERY LEVELS

When the monitor has low power, the battery icon and “MONITOR” icon on the screen will flash it then gives a 10 seconds audible alarm, the monitor can be recharged by plugging in the adaptor charger cord (8 hrs for full charge), A.B.C. shows charging rate, with beep for full charge. The monitor can continuously work 192 hours at idle state **and will shut off to save power when no motion is detected for 15 mins**





Should a **sensor low** battery be displayed with its associated location please replace the sensor battery. If the monitor is showing a NOS because the monitor is out of range of the sensors the sensor low battery alarm can be ignored. Cold temperatures may also cause lower sensor battery power and this should be taken into consideration.



SENSOR SECURITY

Should sensor security be an issue the sensors are supplied with a screw on locking system which comes complete with wrench or screw driver

This prevents the sensors being unscrewed with a bare hand.

SYSTEM ALARMS

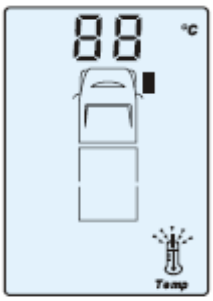
Should you get any alarms STOP in a safe manner and check your tires.
Operators should make themselves familiar with the different icons on the monitor, as an example the pressure icon shows a different level of color fill depending on which alarm is activated. Just because you have an alarm does not necessarily mean your tire is going to be flat, it could be a slow leak, over pressure or high temperature.

Rapid Leakage
When the air pressure of a tire drops down more than 4 PSI within 2 minutes, the monitor will give an alarm and the corresponding wheel icon on the screen will flash to indicate the position of the tire with abnormal air pressure along with its air pressure value. Then the icon showing rapid drop in air pressure appears on the screen along with the **Red warning light** as the left diagram shows.

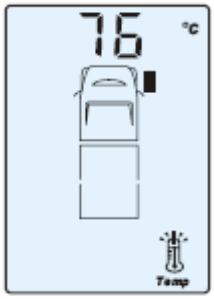
Slow Leakage
When the air pressure of a tire drops down more than 3 PSI within 2 – 10 minutes, the monitor will give an alarm and the corresponding wheel icon on the screen will flash to indicate the position of the tire with abnormal air pressure along with its air pressure value. Then the icon showing slow drop in air pressure appears on the screen along with the **Red warning light** as the right diagram shows.

In extreme cases it is possible to get a slow leak alarm after the vehicle has been pushed hard, overloaded in hot weather etc and the tire pressure has dramatically increased. Upon stopping or slowing down the tire cools quickly and the pressure drops simulating semi rapid air loss. This rapid expansion and contraction is not good for tires. This situation is often caused by high moisture content in the air in the tire. We recommend switching to Nitrogen in these situations.

Note: in the case of a fast or slow leakage, the sensor will deliver the alarm signal in either driving or parked status.



High Temperature Warning: Level 1
When the temperature inside a tire exceeds 85C, the system will give a class 1 high temperature alarm and the monitor will indicate the position of the tire with the abnormal temperature along with its temperature value. Then the icon showing level 1 temperature alarm appears on the screen along with the **Red warning light** as the left diagram shows.



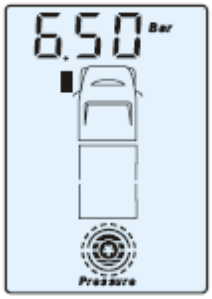
High Temperature Warning: Level 2
When the temperature inside a tire exceeds 75 degrees C, the system will give a class 2 high temperature alarm and the monitor will indicate the position of the tire with the abnormal temperature along with its temperature value. Then the icon showing level 2 temperature alarm appears on the screen along with the **Red warning light** as the right diagram shows

Low Air Pressure Warning: Level 1
An initial alarm is activated when there is a pressure drop of 15% of the set sensor value.
The wheel will be indicated along with the pressure symbol and a flashing red LED as the right diagram shows (Note fill level of Pressure Icon)

Low Air Pressure Warning: Level 2
A warning level 2 is activated when there is a pressure drop of 25% of the set sensor value.
The wheel will be indicated along with the pressure symbol and a flashing red LED as the right diagram shows. (Note fill level of Pressure Icon)

Low Air Pressure Warning: Level 3
A warning level 3 is activated when there is a pressure drop of 50% of the set sensor value.
The wheel will be indicated along with the pressure symbol and a flashing red LED as the right diagram shows. (Note fill level of Pressure Icon)

High Air Pressure Warning
A high air pressure warning is activated when there is a pressure increase of 20% of the set sensor value.
The wheel will be indicated along with the pressure symbol and a flashing red LED as the right diagram shows (Note moving dots around Pressure Icon)

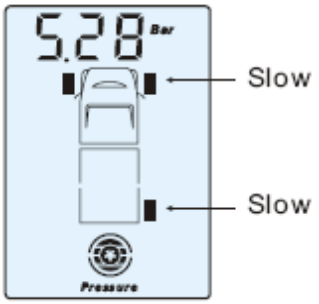


Sensor Error
If the monitor doesn't receive a signal from the sensor within 20 minutes when in **STANDBYE** mode, the system will alarm for 15 seconds, and the corresponding icon of the abnormal wheel sensor will also flash and indicate with "No S" which means there is something wrong with the sensor or the sensor is damaged. The system will alarm every 20 minutes if the monitor still can't receive the signal from the sensor as the left diagram shows.
Note:
When the monitor is changed from **POWER-OFF** to **STANDBYE** mode, the monitor may display "No S" instead of the detailed pressure and temperature value of the aligned tire; however the monitor will indicate the correct value within 4 minutes if the sensors work normally and is in motion. If needed faster just slacken off and re tighten the sensor.

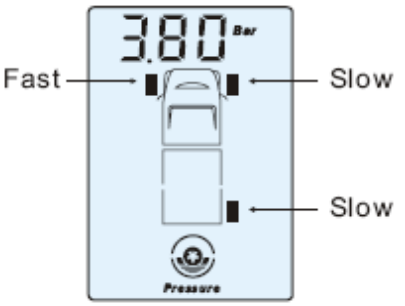
No Signal, This can be caused by the following. Too much distance between the sensor and the Monitor (30 feet or more) the use of a booster or the repositioning of a booster can help. Interference from surrounding radio frequencies, low sensor batteries, poor battery connection, defective sensor, bodywork screening the sensor. Try switching the Monitor off and back on again.
A test would be to delete a known working sensor and install it in the No Signal Location. Then delete the No Signal sensor and install it in the known working sensor position. If the replacement working sensor still shows No Signal in its location it would suggest that there is a reception problem (Distance/Battery etc)
If the working sensor works fine in the No Signal position with no loss of signal it would suggest that the previous No Signal sensor was defective or low battery. It would also suggest that the original No Signal sensor now located in a previously good working location would also have issues if it were defective or had a low battery.
Switching the monitor off on RVs parked overnight will also stop the monitor from re starting due to vehicle movement operating the motion sensor and stop the monitor from seeking sensors. Keep the monitor in range of the sensors for optimum operation. Final testing should be done with the vehicle in motion. If monitoring a trailer only, the monitor should be shut off after dropping the trailer so the NoS and low sensor battery alarms will not operate due to the monitor being out of range when the tow vehicle is driven away.

When there are several abnormalities with the same tire simultaneously, the monitor will indicate all the information as the right diagram shows:

When there are abnormalities with 2 or more tires simultaneously:
When scrolling through wheel positions to check the tire pressure and temperature readings. Any normal tires corresponding icon will not flash and the monitor will just indicates the pressure and temperature value of this tire. **The icon of an abnormal tire position will flash slowly** to remind the user to check it.



If the abnormal tire is selected when checking the pressure and temperature, the corresponding icon of the abnormal tire will flash quickly, the monitor will indicate all the abnormal information of this tire and the icon of other abnormal tires will flash slowly as the right diagram shows:

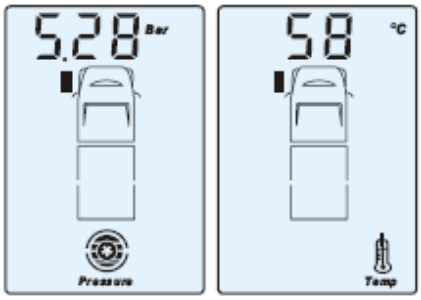


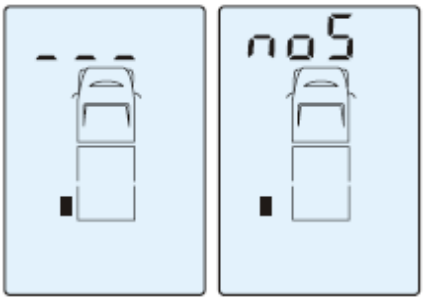
GENERAL INFO
The monitor will give a continuous alarm for 15 seconds with the Red LED and backlight flashing along with the corresponding icon of the tire. Press "↑"**UP** or "↓" **DOWN** buttons to stop an alarm. The backlight will not be flashing and the monitor will just indicate the position of the aligned tire. The Red LED will not stop until the abnormal tire issues are eliminated. When the tire is inflated, rapid leakage or slow leakage may happen if the pressure inside the tire changes from the current pressure value to zero, The monitor will become normal and the alarm will stop after finishing inflating the tire within 2~10 minutes.

RESETTING THE MONITOR, DELETING SENSORS
The easiest way to reset the monitor especially if you are not sure of the operation is as follows
Switch the monitor off completely (See TURNING ON & OFF)
1 Press the middle button to start the monitor.
2 Hold down the 2 outside buttons together until it beeps
3 The left front wheel will flash and the light will be either be Red OR Green
4 If Green hold down the middle button until it beeps and the light turns Red
5 If already Red, press the right button and go to the next wheel (Right Front)
6 We are looking to turn any Green lights to Red (Delete the Sensor)
7 Press the right Button and pass by every wheel turning any Green lights to Red, by pressing the middle button until it beeps
8 Once every wheel on the monitor shows a Red light it means we have deleted all sensors from the monitor
9 Then hold down the 2 outside buttons together until it beeps to get out of the alignment mode
10 The monitor is now basically as you purchased it with no sensors registered.

Checking Tire conditions

During the standby mode, press"↑ **UP** "or " ↓ **DOWN** " buttons to check the air pressure and temperature values of the aligned tires. Press "↓" **DOWN** " button and the monitor will switch to indicate the next data as the *right graphic* shows.





The monitor will indicate "- - -" to show the tires that haven't been aligned as the *left graphic* shows, the monitor will indicates "**no S**" for aligned tires without signals.

Technical Specifications

Sensor

Working Temperature	-20C – 85C
Working Humidity	0-- 95%
Dimension	21X21X21mm
Weight	9g
Battery Voltage	3V DC (CR1632)
Battery Life	1 year minimum
Standby Current	500nA
Working Current	6mA
Pressure Measure Range	140psi
Pressure Measure Precision	+/-2 psi
Temperature Measure Range	-20c-85c
Temperature Measure Precision	+/-3C
Signal Transmitting Frequency	433.92MHz

Monitor

Working Voltage	3 VDC
Working Temperature	-20 – 60 C
Working Humidity	0 – 90%
Standby Current	0.1mA
Working Current	15 mA
Dimension	90 X 55 X 24mm
Signal Receiving Frequency	433.92MHz
Color of Backlight	White

Units Conversion

1 Bar=14.5 psi , 1 Bar=1.02 kgf/cm2, C stands for Celsius, F stands for Fahrenheit, F=9c/5+32

OPTIONAL SIGNAL BOOSTER

An optional signal booster (ordered separately) **either hard wired or battery powered** is available from www.TPMS.ca or your HawksHead Dealer
Designed to boost the sensor transmitting range for vehicles with long distances from sensors to monitor or where sensors are shielded by bodywork etc causing sensor signal strength to be reduced and where extremely cold temperatures may reduce sensor battery power.
The booster should be installed as low as possible on the rear of the towing vehicle or at the front of the trailed vehicle. The hard wired booster should be powered by an inline 2 amp maximum fused 12v DC supply powered when the vehicle is moving. The red cable is + and the black – . The Battery booster uses AA batteries that we recommend be changed every six months for optimum performance. The Monitor also displays a low booster battery alert.

If the system is used for a tow vehicle and trailer/toad together. The system will still show detached trailer pressures and temps for a period of time before reverting to a no signal warning. The system will continue to monitor the tow vehicle and will pick up the trailer sensors when re connected. to the trailer

TESTING THE SYSTEM

The fast leak can be tested by unscrewing the sensors and retightening them before setting off on a trip. With the monitor in the drivers position, the alarm should activate and then reset on re tightening the sensors.

GENERAL INFORMATION

Tire pressure recommended operating pressures should be set when the ambient temperature is low or cold or where the tire has cooled down and is at a low temperature, out of the sun etc. Dramatic changes in tire pressure can occur because of increased or decreased ambient temperature; tire contact surface temperature, wheel and axle loads etc, these and other situations should be taken into consideration when setting initial tire operating pressures. This system cannot warn you of impending side wall failures or blowouts, however it can supply you with irregular pressures and temperature information that may help to prevent this. . If the monitor is shut off overnight simply switch the monitor back on prior to departure and your realtime tire pressures and temperatures will be updated within 5 to 15 minutes on the Monitor. Even if the monitor is in the sleep mode the system is always monitoring and will alarm should any pressure settings or temperatures be out of your set parameters.The ***Pressure Track System***, relies on a good air connection between the Pressure Track Sensors and the tire valve (known as the Dill Valve) which is located inside the tire valve stem.

The Dill Valve should be the correct size, be in good condition and be able to be depressed fully to allow the release of air to the Pressure Track sensor so it can operate.

Some valve stem extensions may cause inaccurate readings if they do not allow the sensor to operate correctly, standard short metal bodied stems are recommended for best performance.

Should you have difficulty with a pressure sensor not operating correctly we recommend that you contact a tire professional to ensure that the tire stem and Dill Valve are installed and operating correctly. Do not use tire sealants or balancing compounds that can enter the sensor body when using this system. Over a period of time tires may loose pressure naturally, through the tire itself or for other reasons such as rim leakage etc.

However after the Pressure Track valve sensors (including locking mechanism, if fitted) are installed it is recommended that the sensor and valve stem be completely covered in a soapy solution of 1 part liquid soap to 2 parts water, to see if there are any air bubbles coming from the valve and sensor area indicating that the tire is leaking air.

If air bubbles are visualized in any of these areas, the tire may deflate and the ***Pressure Track***, system will not operate correctly. The wheel sensors are weatherproof and can be run in the rain.

A tire professional should be consulted should any of these areas prove to be a problem

Please note, ***Pressure Track Systems***, operates on an RF system, as with many RF tire systems this system can suffer from interference depending on the systems location thus causing the system to be inaccurate or not operate at all. We cannot guarantee that the display will receive the sensor signal accurately.

Purchasers of this product should not rely on this tire pressure monitoring system for safety and should check the condition and pressure of their vehicles tires on a regular basis as described by the manufacturer of the vehicle or tire manufacturer.

Tire pressures and temperatures are not the only things that can affect tire safety; we suggest daily visual inspections and checks by tire professionals.

LIMITED WARRANTY & GUARANTEE

If you are not happy with your purchase we offer a 30 day Money Back (Less S/H) Guarantee, if returned in original shipped condition with proof of purchase

HawksHead will, within 12 months from date of original purchase, repair or replace free of charge any defective component (except batteries) which upon careful inspection is found, in our sole judgment, to have material or manufacturing defects, provided it is received freight prepaid, accompanied by the original purchasers sales slip and an authorized Return Merchandise Authorization number (RMA #.). You may obtain an RMA # by emailing RMA@TPMS.CA

DISCLAIMER OF WARRANTY: Neither the seller nor the manufacturer will be liable for any loss damage or injury directly or indirectly arising from the use or inability to determine the use of this product. Before using, the user shall determine the suitability of the product for its intended use, and the user shall assume all responsibility and risk in connection herewith.

PLEASE NOTE: SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG IMPLIED WARRANTIES MAY LAST OR DO NOT ALLOW EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THOSE EXCLUSIONS OR LIMITATIONS MAY NOT BE APPLICABLE TO YOU.

PLEASE CHECK OUR COMPLETE TERMS & CONDITION OF SALE ON OUR WEBSITE AT WWW.TPMS.CA/TERMS.html

PLEASE CHECK THE SUPPORT FAQ BUTTON ON THE CD FOR FREQUENTLY ASKED PRODUCT QUESTIONS & ANSWERS