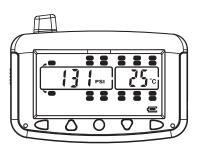


### WIRELESS TIRE PRESSURE AND TEMPERATURE MONITORING SYSTEM

# **TPM5** Monitors up to 22 tires in real time

Instruction Manual Model No.: EK215H



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#### **1. TPMS MAIN FEATURES**

#### **Reduce Driving Risks**

It was reported that an astonishing 75% of all running tires in the USA are under-inflated and 70% of fatal traffic accidents were caused by tire blowouts. With a TPMS, drivers are warned of abnormal tire conditions before it becomes dangerous.

#### **Improve Fuel Economy**

Today's tire designs make visual inspection of deflated tires very difficult. Very often, a 30% underinflated tire looks very much like a fully inflated one. A TPMS will make sure your tire pressure is at its proper level. A 9PSI drop in tire pressure will cause approximately 4% increase in fuel consumption.

#### **Prolong Lifetime of Tires**

The following table shows a simple relationship between tire pressure and tire lifetime:

Tire Pressure	Tire Lifetime
20% under inflated	30% less
30% under inflated	45% less
20% over inflated	10% less

#### 2. PRODUCT FEATURES

#### 2-1. Monitor Features

- Reliable and easy to install.
- Large LCD screen.
- Built-in rechargeable lithium battery. ⊳
- Automatic backlight.  $\triangleright$
- Configurable high/low pressure warnings. Configurable high temperature warnings.
- Visible and audible alerts.
- Selectable pressure units.  $\geq$
- Monitors up to 22 tires maximum.
- Long range between sensors and monitor.
- Per axle measurements can be configured on the tractor.

#### 2-2. Sensor Features

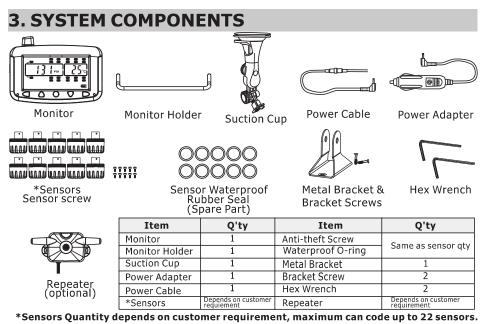
- Reliable cap sensors, easy to install.
- Water resistant.
- Replaceable sensor batteries.
- Fast leakage alert.
- Individually coded sensors.
- Anti-theft design.

#### 2-3. Repeater Features (optional part)

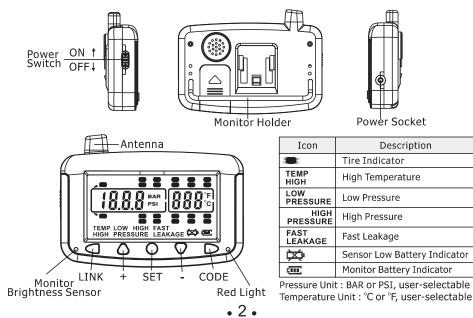
- For Trailer-exchange Application
- > Maintains signal stability
- > Records sensor ID, trailer ID and tire pressure and temperature limits
- > Supports truck & trailer exchange
- > Transferable trailer sensor data between monitor
- > Visible and audible alerts
- > Fixed alerts for high temperature (90 $^{\circ}$ C)

#### For Signal Booster Application

Enhance the signal from sensors and ensure the stability of receiving the signal from sensors.



#### 3-1. Monitor Components And Icons



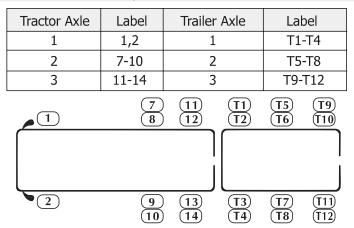


#### 4. PROGRAMMING SETUP

#### 4-1. First Time Set Up

Before you use the TPMS for the first time, you should program the sensor codes. There are 3 options available:

**INFLATE CODE, INPUT ID CODE AND LF AUTOCODE (recommended).** Note: It is recommended to label the sensors positions of the tires.



Record the sensors and tire positions as follows:

#### 4-2. Programming Sensor Codes

#### **PROGRAMME SENSOR ID INTO MONITOR THROUGH INFLATION**

- 1. In standby mode, press and hold the **CODE** button for 3 seconds, release it after the beep to enter the coding mode. A flashing tire icon is displayed together with the letters **FFF FFF** for un-programmed tire or sensor's ID code for programed tire.
- 2. Press the + or button to select the desired tire.
- 3. Mount the sensor on to the valve, the sensor will send its ID code to the monitor automatically. A beep will be issued and the tire position is stored together with sensor's ID code.
- 4. The tire icon and ID code will keep flashing.
- 5. Press the + or button to select the other tire and repeat for all the tires.
- 6. The programmed sensors' ID can be saved automatically.
- 7. After all sensors' ID code are programmed to the monitor, press the **CODE** button for 3 seconds to exit.

#### INPUT SENSOR ID CODE TO THE MONITOR DIRECTLY

- 1. In standby mode, press and hold the **CODE** button for 6 seconds until the second beep(do not release after the first beep).
- 2. Press the + or button to select the desired tire, and press **SET** button to confirm.
- 3. Press the **CODE** button to scroll through each digit code.
- 4. Press the + or button to change the value of each digit code.
- 5. Then press **SET** button to save the ID code.
- 6. After all sensors' ID code are input to the monitor, press the **CODE** button for 3 seconds to exit.

#### **PROGRAMME SENSOR BY LF/AUTO CODING (recommended)**

- 1. In standby mode, press and hold the **CODE** button for 3 seconds, release it after the beep to enter the LF coding mode. A flashing tire icon is displayed together with the letters **FFF FFF** for un-programmed tire or sensor's ID code for programmed tire.
- 2. Press the + or button to select the desired tire.
- 3. Press the **CODE** button, a flashing tire icon and **LF** are displayed together with letter "**Id**"
- Place the sensor close to the monitor and press the CODE button once the letters Id with a flashing LF will be displayed and a red light will be lit on the monitor.
- 5. On receiving the code, the monitor will issue a long beep and the tire position is stored together with sensor's ID code. The tire icon on the monitor will keep flashing after the code is received successfully.
- If the monitor does not receive the code within 6 seconds, an error message Err will be displayed. A double-beep will be issued and the red light goes out. Move the sensor closer to the monitor and repeat step 4 and 5.
- 7. The tire icon and sensor's ID code will keep flashing.
- 8. Press the + or button to select the other tire and repeat the above operations for all the tires.
- 9. The programmed sensors' ID can be saved automatically.
- 10. After all sensors' ID code are programmed to the monitor, press and hold the **CODE** button for 3 seconds to exit.
- Note: If a sensor is coded twice into the same monitor, the previous setting will be deleted automatically.



#### 4-3. Deleting a Single Sensor ID

#### In Sensor Code Mode

- 1. In standby mode, press and hold the **CODE** button for 3 seconds, release it after the beep to enter the coding mode. A flashing tire icon and ID code are displayed. Press the + or button to select the desired tire.
- 2. Press and hold the **SET** button for 3 seconds. A double-beep sound will be issued after the sensor code is deleted successfully. If no further action is made after 3 minutes, the system will return to standby mode automatically. To return to standby mode immediately, press and hold the **CODE** button for 3 seconds until a beep is issued.

#### In Review ID Code Mode

- 1. In standby mode, press the **CODE** button to enter the review ID mode. A flashing tire icon and sensor's ID code are displayed. Press the + or button to select the desired tire.
- 2. Press and hold the **SET** button for **3** seconds. A double-beep sound will be issued after the sensor code is deleted successfully. If no further action is made after 3 minutes, the system will return to standby mode automatically. Press the **CODE** button will return to standby mode immediately.

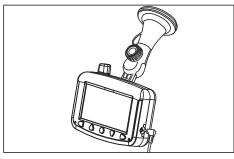
#### 4-4. Deleting all Sensors ID

- 1. In standby mode, press the **CODE** button to enter the review ID mode. A tire icon and sensor's ID code will flash.
- 2. Press and hold the **LINK** button for **3** seconds. During this period, a double-beep will be issued. The message **dEL ALL** will display on the monitor.
- 3. Press the **SET** button to confirm the delete operation or press the **CODE** button to cancel. If no further action is made after 3 minutes, the operation is automatically cancelled and the system will return to standby mode.

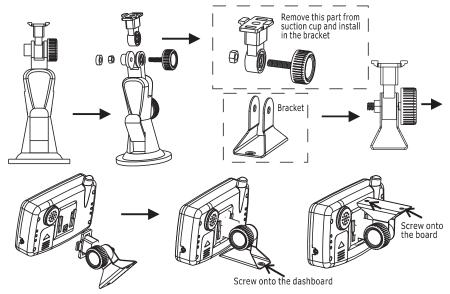
### 5. INSTALLATION

#### 5-1. Monitor Installation

Option 1: Mount the monitor onto the windscreen using the suction cup.



Option 2: Fix the monitor on the dashboard with metal bracket & screws. Please follow the instructions as below.



Note: Make sure the monitor will not obstruct driver's vision of the road.

#### 5-2. Sensor Installation

In order that the monitor can receive the sensor date immediately, please make sure the monitor is power on before installing the sensors.

• 6 •

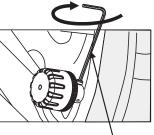
1.Remove the valve dust cap and mount the sensor onto the valve. 2.Tighten the screw onto the valve stem with hex wrench.

#### Note: Each sensor has a spare screw for replacement. you will need hex wrench to remove and reinstall the sensor, please keep the hex wrench for future usage.





\*Be sure not to oven-tighten which might damage the sensor.

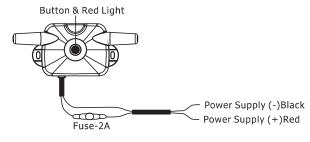


Hex Wrench

#### 5-3. Repeater Installation (optional part)

If, due to length or interference, the monitor does not receive all of the sensors, or for the purpose of trailer-exchange, you will need to install a repeater to increase the sensors transmitting distance, or exchange trailers without reprogramming sensor code.

To have better performance, it's recommended that the repeater be installed outside between the front tractor and towed trailer. For trailer-exchange applications, install a repeater on each trailer. Please connect the power cables according to the wire diagram as below:



#### 6. REPEATER FUNCTION (optional part)

#### 6-1. For Signal Booster Applications:

Ensure the stability of receiving the signal from sensors when signal is weak and transmits the signal to the monitor. For this use, simply plug the repeater into a 12-24V power source, and it will be operational. The LED should illumine and flash periodically, while receiving and transmitting.

• 7 •

#### 6-2. For Trailer-exchange Applications:

Enables the sensors to be trailer-exchangeable with the monitor without reprogramming the sensors, each trailer can have a trailer-exchange repeater, which will record sensor IDs, the high pressure alert and low pressure alert for the tires and each trailer. To enable trailer-exchange for the trucks in the fleet, please refer to the following operations.

#### 6-2-1. Enter Tractor & Trailer ID for the First Time

- 1. In standby mode, press the **LINK** button on the monitor a six digits ID will be displayed for the current tractor.
- 2. Press the LINK button again will display the six digits ID of the trailer.
- 3. Press the **LINK** button for the 3<sup>rd</sup> time, the system will enter the tractor ID coding mode.
- 4. Press the **LINK** button for the 4<sup>th</sup> time, the system will enter the trailer ID coding mode.
- 5. Press the + or buttons to scroll through numbers from 0-9. Press the **CODE** button will set the digit and move the cursor to the next digit.
- Press and hold the CODE button for 3seconds to store the ID.If no action is taken for 1minute, the system will return to the standby mode without making any changes.





**Example 1:** Tractor ID (608993) and a flashing tractor.

**Example 2:** Trailer ID (500393) and a flashing trailer.

#### 6-2-2. Monitor Sending Data to Repeater for the First Time

If using the repeater for the first time, you will need to code all the sensors, input the trailer ID, set the high/low pressure alerts and send the trailer data to the repeater.

- 1. In standby mode, press and hold the **LINK** button on the monitor for **6** seconds to enter **sending mode**. Do not release it after you hear the 1<sup>st</sup> beep. A flashing **SEnd** will be displayed on the monitor.
- Press and hold the button on the repeater for 3 seconds until a beep is issued. The monitor will now send the sensor IDs, pressure and temperature data and the trailer ID to the repeater. On successful transmission, the monitor will issue a long beep together with trailer ID and tire icons.
- 3. On error, or if the repeater does not receive the data within 2minutes, the monitor will issue a double-beep and a flashing **FAIL** will be displayed on the monitor.
- 4. Press any button or wait 3 minutes to return to standby mode.
- Note: The repeater can only store the latest trailer's data it will automatically update the data if the data is received from the monitor.



#### 6-2-3. Repeater Send Data to Monitor (For Trailer exchange)

- 1. Press and hold the button on the repeater for 3 seconds until you hear the 2<sup>nd</sup> beep and the LED will be lit.
- 2. Press and hold the LINK button for 3 seconds on the monitor within 2 minutes. All the tire icons will be displayed on the monitor with a flashing ACCEPt message. Here the system enters the receiving ID mode.
- 3. The repeater will send the sensor IDs, pressure and temperature data and the trailer ID to the monitor.
- 4. On receiving the data, the monitor will display all the tire icons in the trailer and the trailer ID. The trailer icon will flash for 3 minutes then exit. Press any button within that 3 minutes period to escape and cancel the operation.
- 5. On error, or if the repeater does not receive the data within 2 minutes, the monitor will issue a double-beep and a flashing FAIL will be displayed with the trailer tire icons.
- 6. Press any button or wait 3 minutes to return to standby mode. Note: The repeater can only store the latest trailer's data even if no sensor data was recorded for tires in the trailer it will automatically update the data if the data is received from the monitor.

#### **7. PARAMETER SETTINGS**

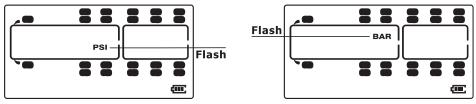
- 1. In standby mode, press and hold the SET button for 3 seconds, release it after the beep.
- 2. Press the **SET** button repeatedly to scroll thru the different parameters
- 3. Press the + or button to adjust the desired settings.
- 4. Press and hold the SET button for 3 seconds then release it after the beep to save the settings.
- 5. If no action is taken for 1 minute, the system will return to the standby mode without making any changes.

#### 7-1. Factory Default

Pressure Unit:	PSI
High Pressure:	175PSI (12.1 BAR)
Low Pressure:	100PSI (6.9 BAR)
Temperature Unit:	°C
High Temperature:	70°C (158°F)

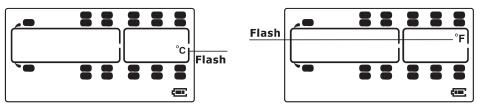
Note: To restore the factory default settings, turn on the monitor and press the **SET** button at the same time. The factory default settings will be restored without changing the ID code information.

#### 7-2. Settings Sequence **1. Pressure Unit**



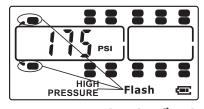
While the **PSI** or **BAR** icon is flashing, Press the + or - button to select .

#### 2. Temperature Unit

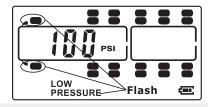


While the °C or °F icon is flashing, Press the + or - button to select.

#### 3. High Pressure Alert in 1<sup>st</sup> Axle



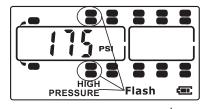
4. Low Pressure Alert in 1<sup>st</sup> Axle



While both tires in the 1<sup>st</sup> axle and the **HIGH PRESSURE** icons are flashing, press the + or - button to adjust.

While both tires in the 1<sup>st</sup> axle and the **LOW PRESSURE** icons are flashing, press the + or - button to adjust.

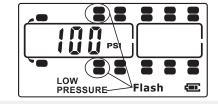
5. High Pressure Alert in 2<sup>nd</sup> Axle



**HIGH PRESSURE** icons are flashing, press the **+** or **-** button to adjust.

While 4 tires in the  $2^{nd}$  axle and the

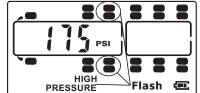
6. Low Pressure Alert in 2<sup>nd</sup> Axle



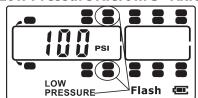
While 4 tires in the 2<sup>nd</sup> axle and the **LOW PRESSURE** icons are flashing, press the **+** or **-** button to adjust.

•10•

7. High Pressure Alert in 3<sup>rd</sup> Axle



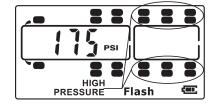
8. Low Pressure Alert in 3<sup>rd</sup> Axle



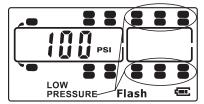
While 4 tires in the 3<sup>rd</sup> axle and the **HIGH PRESSURE** icons are flashing, press the **+** or **-** button to adjust.

While 4 tires in the 3<sup>rd</sup> axle and the **LOW PRESSURE** icons are flashing, press the **+** or **-** button to adjust.

9. High Pressure Alert in trailer

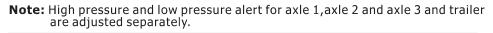


**10.** Low Pressure Alert in trailer

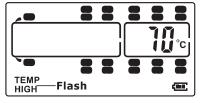


While all 12 tires in the trailer and the **HIGH PRESSURE** icons are flashing, press the **+** or **-** button to adjust.

While all 12 tires in the trailer and the **LOW PRESSURE** icons are flashing, press the + or - button to adjust.



#### **11. High Temperature Alert**



While the **TEMP HIGH** icon is flashing, press the **+** or **-** button to adjust.

•11•

#### 8. ALERTS

The sensors send pressure and temperature readings to the monitor every 5 minutes. If any reading is out of the pre-defined values, you will notice 3 things:

- An audible alarm;
- The red light on the monitor will flash;
   The corresponding icon on the monitor will flash.

Press any button to switch the alarm off. However, the red light will not be turned off until the correct pressure and temperature settings are restored to within range. The factory preset values are:

High Pressure:	175PSI (12.1 BAR)		
Low Pressure:	100PSI (6.9 BAR)		
High Temperature:	70°C (158°F)		

#### 8-1. Monitor Alerts

#### **1. High Pressure Alert**

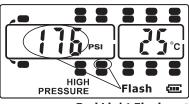
When the sensor detects high pressure in a tire, it will send an alert to the monitor immediately. The **HIGH PRESSURE** will show on LCD and the corresponding tire icon will flash. The audible alarm will be on together with the flashing red light. Press any button to turn off the alarm. However the flashing red light and icons will continue until the problem is corrected.



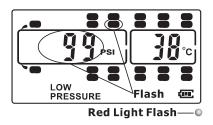
When the sensor detects low pressure in a tire, it will send an alert to the monitor immediately. The **LOW PRESSURE** will show on LCD and the corresponding tire icon will flash. The audible alarm will be on together with the flashing red light. Press any button to turn off the alarm. However the flashing red light and icons will continue until the problem is corrected.

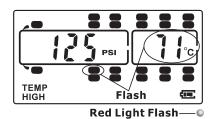
#### 3. High Temperature Alert

When the sensor detects high temperature in a tire, it will send an alert to the monitor immediately. The TEMP HIGH will show on LCD and the corresponding tire icon will flash. The audible alarm will be on together with the flashing red light. Press any button to turn off the alarm. However the flashing red light and icons will continue until the problem is corrected.



**Red Light Flash**--0

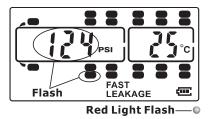




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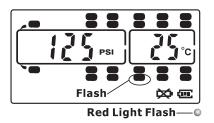
#### 4. Fast Leakage Alert

When the sensor detects abnormal loss of tire pressure, it will send an alert to the monitor immediately. The **FAST LEAKAGE** will show on LCD and the corresponding tire icon will flash. The audible alarm will be on together with the flashing red light. Press any button to turn off the alarm. However the flashing red light and icons will continue until the problem is corrected.



#### **5. Sensor Low Battery Alert**

When the sensor detects low battery level, it will send an alert to the monitor immediately. The low battery icon will show on LCD and the corresponding tire icons will flash. The audible alarm will be on together with the flashing red light. Press any button to turn off the alarm. However the flashing red light and icons will continue until the problem is corrected.



#### 8-2. Repeater Alerts (For Trailer-exchange Application)

#### 1. High/Low Pressure and Fast Leakage Alerts

When the sensor detects high/low pressure abnormalities and fast leakage, it will send an alert to the **repeater** immediately. The audible alarm will be on together with the flashing red light. Press any button on the repeater to turn off the alarm. However the flashing red light will continue until the problem is corrected.

#### 2. High Temperature Alert

The repeater has a fixed temperature alert at  $90^{\circ}$ C. The sensors send the temperature readings to the repeater every 5 minutes. If the temperature is above  $90^{\circ}$ C, an audible alarm will be on together with the flashing red light. Press any button on the repeater to turn off the alarm. However, the flashing red light will continue until the temperature is dropped below  $90^{\circ}$ C.

#### 9. OTHER FUNCTIONS

#### 9-1. Normal Scrolling Display

During normal operation, the monitor scrolls through and displays the tires one by one for 5 seconds. An audible alarm will be issued if one of the sensor data is not received by the monitor for more than 60 minutes. You can manually scroll through and select the tire by pressing the + or - button. A manually selected tire will be displayed for 10 seconds.

#### 9-2. Backlighting

The monitor has a built in light and motion sensor. The backlight only turns on when it detects the vehicle is in motion and when it is dark enough. The monitor will be in sleep mode to conserve battery life if the motion sensor detects the vehicle has stopped for a while. It will turn on again when it detects the vehicle is moving again. Press any button on the monitor to turn on the backlight manually, to turn it off, press and hold the **+** button for 3 seconds.

#### 9-3. Connecting/Disconnecting the Trailer

When the trailer is not connecting to the tractor, press the **LINK** and - buttons at the same time, the trailer and its tire icons will be removed temporarily. Press the **LINK** and + buttons at the same time, the trailer and its tire icons will re-appear.

#### 9-4. Charging the Monitor

#### 9-5. Viewing ID Code

In standby mode, press the **CODE** button to enter the view mode, the monitor will display sensor's ID code if the tire position is programmed with a sensor, while it will display **FFF FFF** if the tire position is un-programmed. Press the **+** and **-** buttons to select the tires you want to review. It returns to standby mode after 3 minutes or by pressing the **CODE** button.



#### **10. REPLACING THE SENSOR BATTERY**

When the sensor low battery icon  $\maltese$  shows on the monitor and corresponding tire icon is flashing, the sensor battery needs replacement. A CR1632 battery cell is recommended which operates at -40°C to +80°C. You can buy replacement batteries from your local dealer.

1. Use the hex wrench provided to remove the anti-theft screw and take out the sensor.



2. Unscrew the sensor cap.



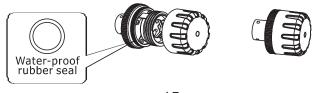
3. Take the battery out.



4. Replace a new CR1632 battery cell, ensure the positive+ is facing upwards.



5. Check that the water-proof rubber seal is in its proper position. Screw the sensor cap back on.





### **11. SPECIFICATIONS**

#### 11-1. Monitor

Operational Temperature	-20°C ~ 80°C
Storage Temperature	-30°C ~ 85°C
Charger Input Voltage	DC 8 ~ 30V
Transmission Frequency	433.92MHz
Size	116(L) x 68(W) x 25(H) mm
Weight	138g

### 11-2. <u>Sensors</u>

-40°C ~ 80°C	
-40°C ~ 85°C	
0~13 bar, 0~188 psi	
$\pm 1.5 \text{ psi}(\pm 0.1 \text{ bar})$	
± 3°C	
<10dBm	
433.92MHz	
2 years (CR1632 -40°C~80°C)	
24mm(diameter) 19.5mm(height)	
30g	

### 11-3. <u>Repeater(optional parts)</u>

Operational Temperature	-20°C ~ 80°C
Storage Temperature	-30°C ~ 85°C
Working Voltage	12 ~ 24V
Transmission Power	<18dBm
Transmission Frequency	433.92MHz
Size	91(L) x 38(W) x 15(H) mm
Weight	42g



#### **12. CAUTIONS**

- 1. The monitor should be installed inside the vehicle where it does not affect normal driving.
- 2. The monitor should be well fixed to avoid falling off during driving.
- 3. After the sensor installation, it is highly recommended to check for any air leakage.
- 4. This TPMS can effective monitors tire pressure and temperatures but cannot prevent traffic accidents regular tire inspection and maintenance is still necessary.
- 5. After the system is installed correctly, the driver does not need to stare at the monitor all the time while driving. Alerts will be issued when abnormal conditions are found in the tires.

\*Information in this manual is subject to change without notice.

# WARRANTY

Congratulations on your purchase of a quality **2XI5** Mobile Safety System! You're joining thousands of satisfied customers who enjoy & experience the benefits of the products we distribute. In the unlikely event that some technical difficulty arises with your purchase, be assured that we are most anxious to see that the problem is quickly rectified to your satisfaction. Please familiarise yourself with the following simple conditions of our warranty.

This warranty covers faults through component failure or failure of the product to operate in accordance with published specifications. Product failure as a result of unreasonable environmental conditions, accident, misuse, improper installation, unauthorised repair, vehicle electrical or wiring faults or neglect etc, will not be covered by this warranty. Removal and installation costs, if any, would be paid by the owner as well as any freight or postage costs of transporting the product to AudioXtra. AudioXtra shall not be liable or responsible for any loss of use of this product or any form of consequential loss.

#### **CONSUMER WARRANTY**

This product is warranted by AudioXtra International Pty Ltd to be free from defects in materials and workmanship under **NORMAL USE** for a period of **12 MONTHS** from the date of purchase.

WITHIN 30 DAYS OF PURCHASE DATE: Please return the unit for replacement to our National Service Centre or the Retailer from where you made the purchase. All accessories must be included. Proof of purchase date <u>must</u> accompany the products.

AFTER 30 DAYS OF PURCHASE DATE: Warranty repair and service is carried out by our National Service Centre. Repair and service will be carried out at no cost to the owner if proof of ownership and the date of purchase can be verified to the satisfaction of the authorised centre concerned with this repair. This proof should take the form of either:

a) The warranty card accompanying this product, stamped and dated by the dealer.
b) A Tax Invoice or Receipt showing full details of original vendor, purchaser, model number and serial number.

**COMMERCIAL WARRANTY:** A product used in or associated with a commercial application will carry a limited **SIX MONTH** warranty. An abnormal commercial application is one where usage, dust, vibration, heat/cold and other environmental conditions exist at an extreme level.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Please complete details below Purchaser's Name:		, , , , , , , , , , , , , , , , , , , ,		
Purchaser's Address:				
Model Number:	EK215H	Serial Number:		
Dealer Name:		Date of Purchase:	1	1
Dealer Address:				
	rice and prompt return in detail	of the equipment, please: c) Include your return address		
b) Safety and security pack	he unit for transport	d) Provide proof of purchase date as out	ined at	ove

www.audioxtra.com.au

#### National Service Centre:

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