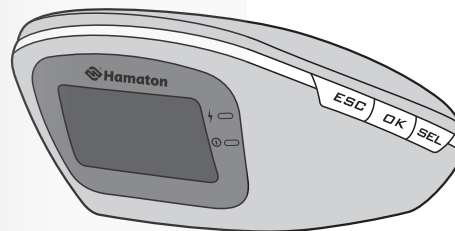


PRO TPMS™

Hamaton Tire Pressure Monitoring System

User's Guide

HTRD 01



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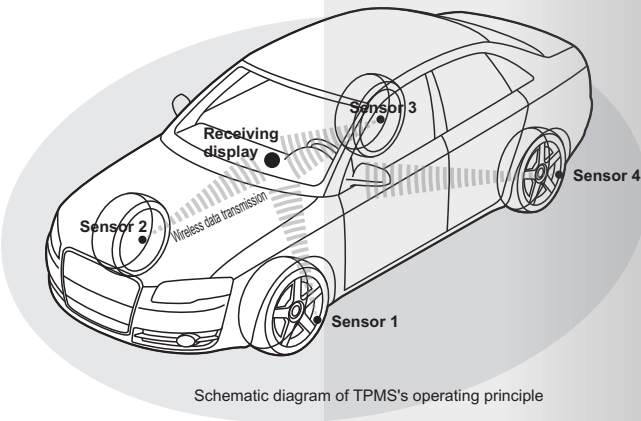
Welcome to Hamaton PRO-TPMS product. The User's Guide is beneficial for you to quickly set up and use TPMS products. Please carefully read the Guide and operate in accordance with it. For more information of Hamaton PRO-TPMS products, please visit www.hamaton.com.cn

General

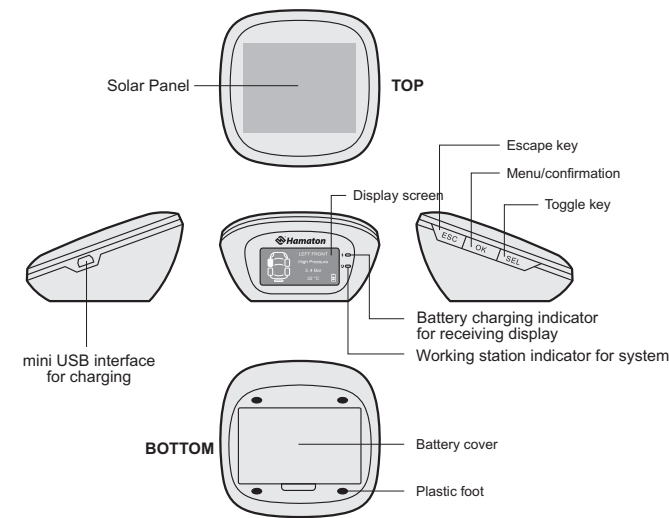
Tire Pressure Monitoring System is referred to as TPMS.

System introduction

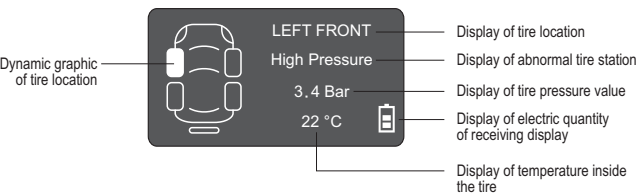
TPMS is composed by four sensors (five sensors if monitoring for spare tire is necessary) and one receiving display. Sensors are installed inside the tires. They will collect real-time temperature and pressure data of the tires and send the data to the receiving display in wireless way. Meanwhile, the receiving display will accordingly receive the information. In case of abnormal situation (such as air leakage, over high pressure, over low pressure or high temperature etc.), it will give an alarm. In this way, the TPMS can guarantee the driving safety. It is an active protective early warning system for vehicles.



Product View and Parts Information



Introduction on display of receiving display's screen



Installation of Sensor

* Professional tire installation and maintenance equipment is required for the sensors of the system. Therefore, it is suggested that you go to professional tire shops for installation.

STEP 1

Successively dismantle the tire, screw out the valve core of tire valve and make the tire deflated.



STEP 2

Loosen outer surface of the tire toward to the tire valve with tire changer and then loosen the inner surface of the tire. Strip the tire from the wheel frame.



STEP 3

Dismantle the original tire valve on wheel frame.



Installation of Sensor

STEP 4

Clean up the hole of wheel frame and inner surface of wheel frame, so as to remove the impurity and dirt (it is suggested that coat a thin layer of soapy water or silicone oil on the hole of wheel frame).

STEP 5

Select the sensor in corresponding location in accordance with installation location of the tire.

If the sensor with impact aluminium tire valve is used, screw out the nut firstly. Then make the tire valve of the sensor pass through the hole of wheel frame from inside to outside. During installation, make sure that the rubber gasket and the hole of tire frame are perfectly matched and the plane of the sensor is parallel to wheel frame. Finally, screw down the nut. The nut shall be made to the required torque rating with socket sets used for settings on torque value. The defined torque value of Hamaton sensor is 44.25lbf-in or 5N.m.

If the sensor with clip-on rubber tire valve is used, utilize professional tool for tire valve to pull tire valve and sensor into the hole of wheel frame. Pay attention to protect sensor while pulling in. After pull them into the hole, make sure that the plane of the sensor is parallel to wheel frame and the hole of tire frame in the locating ring of the tire valve is wholly exposed.



STEP 6

Paint lubricating agent on contact surface between tire and wheel frame. Then assemble the tire into wheel frame.



Installation of Sensor

STEP 7

Blow up the tire, so as to make the pressure of the tire reach to standard pressure value. The standard pressure value of each vehicle is generally pasted on the place under door frame in driver's side or on fuel tank cap. As well, you can reference to the user's manual. For the remoulded car, it is required to confirm standard tire pressure value by tire shop.



STEP 8

Dynamic balance is done for well-charged tire.

STEP 9

Repeat the above-mentioned steps to install the else sensors into the corresponding tires.

TIPS

The general tire shop is capable for the assembling. It is only required to ask the assembler pay special attention to Step 5 and Step 7.

Installation of Receiving Display

Installation of Battery

Open the battery cover of receiving display. With aligning copper contact of battery the inner contact of the display, put the battery into the receiving display. Then cover it. The installation of battery is finished.

Installation of receiving display

Put the non-slip mat to the most suitable place (the place in the middle of cab center console is recommended). Tear off the adhesive paper from the non-slip mat. And then align the plastic feet of the receiving display to the four corners and stick it.

While installing the receiving display, please pay attention to the following issues:

- The installation of the receiving display shall not block the driver's view;
- If charging is required, ensure the power line is connected to the place for cigar lighter;
- Charging in the course of driving shall not interference the driver.



System Settings

Standard pressure setting

* Firstly, make sure the separate standard pressures of front and rear wheels (standard pressure is generally marked on the place under door frame in driver's side or on fuel tank cap. As well, you can reference to the operating instruction).

STEP 1: to set up pressure unit (the factory settings of pressure unit is Bar)

1. Press "OK" key to enter the main menu. Then press "SEL" key to select the option of "pressure unit setting";
2. Press "OK" key to enter the submenu of "pressure unit setting";
3. Press "SEL" key to select corresponding pressure unit;
4. With pressing "OK" key, the selection of the pressure unit will be finished. The display interface will return back to the main menu.



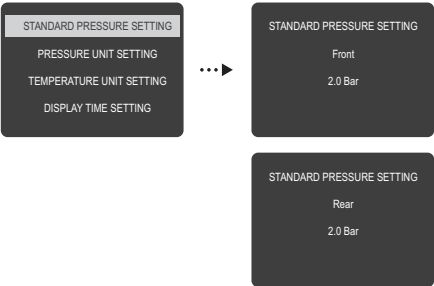
NOTE: there are three kinds of pressure units in pressure unit setting. Please select in accordance with pressure unit found in the car.

$$1\text{Bar}=1000\text{Kpa}=14.5\text{Psi}$$

System Settings

STEP 2: setting standard pressure

1. Press "OK" key to enter the main menu. Select the option of "standard pressure setting";
2. Press "OK" key to enter the standard pressure setting for front wheels.
3. Press "SEL" key to adjust the standard pressure of front wheels (the factory default of pressure is 2.3 Bar. The standard pressure setting will be circularly increased by the scope of 1.5 ~ 3.5 Bar);
4. After finishing adjustment, press "OK" key to enter the standard pressure setting of the rear wheels;
5. Press "SEL" key to adjust the standard tire pressure of the rear wheels.
6. Press "OK" key to confirm the parameters settings and return back to the main interface. The standard pressure setting is finished. In case of pressing "ESC" key, the setting will not be saved and the system will quit setting.

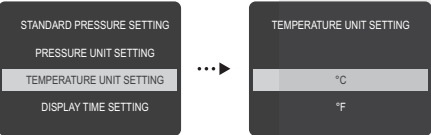


System Settings

Temperature unit setting

* There are two kinds of temperature units for the receiving display of Hamaton TPMS, which are separately centigrade (°C) and Fahrenheit (°F). The factory setting is °C. The customer can select in accordance their habits.

1. Press "OK" key to enter the main menu;
2. Press "SEL" key to select the option of "temperature unit setting";
3. Press "OK" key to enter the submenu of "temperature unit setting";
4. Press "SEL" key to select temperature unit;
5. Press "OK" to return back the main interface. And the temperature unit setting is finished; in case of pressing "ESC" key, the setting will not be saved and the system will quit setting.



System Settings

Time display setting

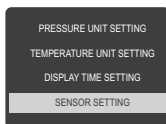
* The function is used for setting the time displayed on the screen of the receiving display. When the system begins to work, in order to save the electricity and avoid interference on the driving of the driver, the receiving display is equipped with function of automatic closing the screen. When the display screen is closed, TOMS can normally monitor. The display time can be "three minutes", "five minutes" or normally open". The factory setting is five minutes.

1. Press "OK" key to enter the main menu;
2. Press "SEL" key to select the option of "time display setting";
3. Press "OK" key to enter the submenu of "time display setting";
4. Press "SEL" key to select time display
5. Press "OK" to return back the main interface. And the time display setting is finished; in case of pressing "ESC" key, the setting will not be saved and the system will quit setting.

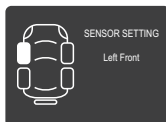


Positioning Settings of Sensor

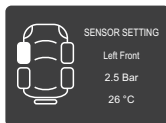
* While newly installing the sensors, it is required to separately install them into the corresponding tires in accordance with "left front", "right front", "left rear" and "right rear" marked on the sensors. In case of changes in position of tires or exchanges of sensors, it is required to again carry out positioning settings on sensors in four tires.



1. Press "OK" key to enter the main menu;
2. Press "SEL" key to select the option of "sensor settings"

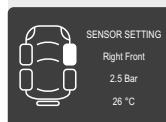
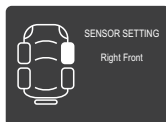


3. Press "OK" key to enter settings on the left front sensor;



4. Then screw out the valve cap of the left front wheel and quickly make the tire deflated with opening valve core. After the pressure data of the left front wheel is shown on the receiving display, stop bleeding gas;

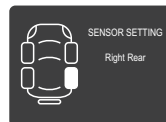
5. The system will automatically switch to the setting interface for the right front wheel;



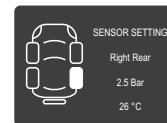
6. Then screw out the valve cap of the right front wheel and quickly make the tire deflated with opening valve core. After the pressure data of the right front wheel is shown on the receiving display, stop bleeding gas;

Positioning Settings of Sensor

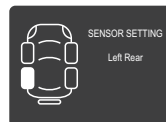
7. The system will automatically switch to the setting interface for the right rear wheel;



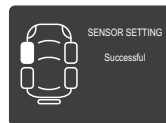
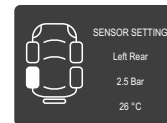
8. Then screw out the valve cap of the right rear wheel and quickly make the tire deflated with opening valve core. After the pressure data of the right rear wheel is shown on the receiving display, stop bleeding gas;



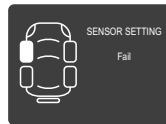
9. The system will automatically switch to the setting interface for the left rear wheel;



10. Then screw out the valve cap of the left rear wheel and quickly make the tire deflated with opening valve core. After the pressure data of the left rear wheel is shown on the receiving display, stop bleeding gas;



11. The setting interface will show "Successful sensor setting".



12. It will return back to the main interface after fifteen seconds or with pressing any key. The positioning setting is finished. Supplement each tire pressure to the standard tire pressure and then screw down valve caps of each tire.

If the setting interface show "fail sensor setting", it is required to press "ESC" key to return to the main interface. Then repeat the above-mentioned steps to again carry out positioning settings of sensor.

In case of pressing "ESC" key during any step, the system will not save and will quit sensor settings.

Remark: the customer that has Hamaton diagnostic tools can use it to carry out positioning setting of sensor. For operating methods, please refer to the operation instruction for Hamaton diagnostic tool.

Settings of Spare Tire

* If the spare tire is equipped with sensor, it is required to carry out settings on the sensor inside the spare tire.

TEMPERATURE UNIT SETTING

DISPLAY TIME SETTING

SENSOR SETTING

SETTING OF SPARE TIRE

1. Press "OK" key to enter main menu;
2. Press "SEL" key to select the option of "setting of spare tire";

SETTING OF SPARE TIRE

2.5 Bar

26 °C

SETTING OF SPARE TIRE

Successful

SETTING OF SPARE TIRE

Fail

3. Press "OK" key to enter settings on the sensor in spare tire

4. Then screw out the valve cap of the spare tire and quickly make the tire deflated with opening valve core. After the pressure data of the spare tire is shown on the receiving display, stop bleeding gas;

5. The setting interface will show "Successful setting of spare tire".

6. It will return back to the main interface after fifteen seconds or with pressing any key. The positioning setting is finished. Supplement each tire pressure of the spare tire to the standard tire pressure and then screw down valve caps of it.

If the setting interface shows "fail setting of spare tire", it is required to press "ESC" key to return to the main interface. Then repeat the above-mentioned steps to again carry out positioning settings of sensor.

REMARK: the customer that has Hamaton diagnostic tools can use it to carry out setting of the spare tire. For operating methods, please refer to the operation instruction for Hamaton diagnostic tool.

Real-time Monitoring Display

The display screen will circularly display the current tire positions and its real-time monitoring data in accordance with sequence of left front, right front, right rear and left rear, as well as the tire pressure and tire temperature.

LEFT FRONT

2.5 Bar

26 °C

Low Tire Pressure Alarm

LEFT FRONT

Low Pressure

1.8 Bar

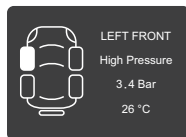
26 °C

When the tire pressure is less than 20% of the standard pressing, the receiving display will display low pressure alarm; the station indicator will turn to red and flash for 30 seconds; the buzzer will bleat for 30 seconds; it will display "low pressure" and real-time tire pressure value. If press "ESC" key within 30 seconds or remain for 30 seconds, the buzzer will bleat each 15 seconds and the indicator will keep red. Alarm will be free until the pressure return back to the standard tire pressure scope.

RESOLUTION:

Slow down and pull over the car. Utilize air pump to charge the tire with low pressure to the standard tire pressure. If case of no air pump, slow down the car to the speed less than 60 km per hour. Middle or low speed driving is available for tire pressure more than 30% of standard pressure. But it is required to pay attention to the tire data shown on the display. Once the pressure turns to the value less than 30% of the standard tire pressure, change the spare tire immediately. If it remains in the value more than 30% of the standard tire pressure, it is allowed to drive to the place for tire maintenance to inspect the tire and charge it. Continuous driving is allowed after the pressure recovers to standard tire pressure.

High Tire Pressure Alarm

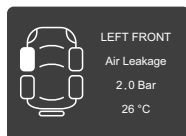


When the tire pressure is 30% higher than the setting pressure value, it will give high tire pressure alarm. The alarm station is the same as that of the low tire pressure alarm set forth. The interface will show high pressure. Alarm will be free until the pressure return back to the standard tire pressure scope.

RESOLUTION: The high tire pressure is caused by the high road temperature in summer and long-time driving. It is required to speed down and pull over the car. Screw out the valve cap and open the valve core with tool, so as to make the tire blow to the standard pressure scope. As a result, the car is able to continue.

TIP: high tire pressure in summer will easily result in tire burst.

Quick Air Leakage Alarm

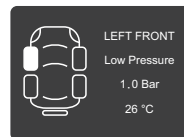


In case of quick air leakage occurred, the corresponding sign will flash and the position of leakage will be shown. The station indicator on the receiving display will turn to red and flash for 30 seconds; the buzzer will beat for 30 seconds. It will show "air leakage" and real-time tire pressure value. If failed to receive the sign on air leakage within 30 seconds again, the air leakage alarm will automatically be free.

RESOLUTION: slow down and pull over the car slowly. Then change the spare tire.

TIP: don't place a hard brake, which will easily result in rear-end collision and overturn accident.

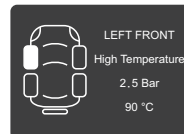
Alarm on Low Tire Pressure Prior to Vehicle Start



Prior to start of the vehicle, it will alarm if the tire pressure is abnormal. Before starting the vehicle, ensure that the receiving display is started. When the tire pressure is less than 1.2 Bar, the receiving display of Hamaton TPMS product will alarm within 15 seconds after being started. The interface will show "low pressure" and tire pressure value; the red light will be on; and it will issue an alarm sound (the alarm method is the same as that for low tire pressure alarm).

RESOLUTION: in case of tire pressure less than 1.2 Bar, it is easily to result in damage to tire while driving. Please charge the tire with air pump to the standard value and then drive it. In case of no air pump, change the spare tire immediately and go to tire shop to inspect the tire.

High Temperature Alarm



It will show the current temperature of the tire. When the temperature is higher than 85°C, it will give a high temperature alarm. The interface will show "high temperature" and temperature value; the red light will be on; and it will issue an alarm sound.

RESOLUTION: slow down and pull over the car. Inspect the tire and the vehicle condition. Don't drive until the tire temperature naturally reduces.

Alarm on Low Sensor Voltage



Battery installed in the tire and used for sensor is unchangeable, which is able to be used for 5-7 years under the normal condition. When the electric quantity of the battery is gonging to be exhausted, the transmission signal will fade. At this time, it will give an alarm on low sensor voltage and give a prompt that the driver shall change sensor.

Sensor Failure Alarm



When the sensor in the tire is accidentally damaged or the electricity quantity of the battery is over low, the receiver can not receive the signal; the receiving display will show "failure"; and the indicator will remain red.

In case of sensor damage, it is required to go to tire maintenance shop to change sensor and carry out positioning setting again.

Battery Indicator and Charger for Receiving Display

The product is charged through solar energy. Under the good light condition, the charging indicator will be on, which indicates charging. Due to effect of season and light condition, it is required to use car-mounted charger at some time.

The electricity quantity will be shown on the lower right corner of the receiving display. Three boxes indicate it is fully charged. In case of only one box, it is required to charge on time.

Please insert the charger into cigarette lighter for charging. The other side shall be connected to USB of the receiving display. At this time, the indicator will be red, which indicates charging. Pull out the charger after it is fully charged.

Technical Index and Technical Parameter for Hamaton TPMS Product

Technical index and technical parameter for the receiving display

Working voltage	3.7V
Charging voltage	5V
Working current	17mA
Working temperature	-10~65°C
Working frequency	315MHz
Operating temperature scope	<80% (non-watertight)

Technical index and technical parameter for the sensor

Battery voltage	3V
Operating temperature scope	-40~125°C
Operating humidity scope	<100%
Working frequency	315MHz
Pressure monitoring scope	0~3.5 Bar for all sedan car
Pressure precision	1%
Temperature precision	2~4°C
Transmit power	5dBm
Service life	5-7 years or 15 kilometers
Weight of the sensor	33g (clip-on tire valve); 28g (aluminium tire valve)

Configuration list

Item	Quantity
Sensor	4 or 5 (including spare tire)
Receiving display	1
Car-mounted charger	1
Battery	1
Introduction	1
Non-slip mat for receiving display	1
Double faced adhesive tape on non-slip mat	4

Terms on After-sale Service for Hamaton TPMS Product

The consumer shall buy Hamaton TPMS product via legal channels. The consumer enjoys the after service of Hangzhou Hamaton tire Valves Co., Ltd for any fault due to accident beyond control.

I In order to protect the legal right and interest of the consumer, the consumer is asked to pay attention to the following information

1. While buying the product, please completely, carefully and truthfully fill in three copies of after-sale service card together with service center in charge of sale and installation;
2. Please properly keep the warranty card and sale bill for purchase of the product;
3. The effective warranty period shall be calculated from the purchase and installation date. Warranty period for the receiving display in Hamaton TPMS product is one year; and the warranty period for the sensor is 3 years.

II The following conditions are beyond the warranty scope.

1. The warranty period is expired;
2. No after-sale service card and purchase and installation proof;
3. The information in warranty card is incomplete or modified. The copy for factory fails to be sent back by the service center in charge of sale and installation;
4. The damage is caused by installation or operation not complying with the User's Guide.
5. Damage or abnormal function is caused by the unprofessional person's dismantling, refitting and disassembling and assembling of the tire.
6. Being soaked in water or dropped due to human factor.

III Other notes

In case that fee charging is required due to inconformity to the warranty condition for Hamaton TPMS product, service center in charge of sale and installation, authorized by Hangzhou Hamaton tire Valves Co., Ltd, will charge the maintenance cost and mark out the reason unconformable to warranty conditions on maintenance record, charging invoice or charging bill.

IV Service information

Service telephone: 4008-096-897 Web: www.hamaton.com.cn

After-sale Service Card of Hamaton TPMS

Copy for consumer

TPMS model:	Installation date:
Vehicle brand and model:	License plate number:
Signature of person in charging of installation:	Signature and telephone of the consumer:
Service center in charge of sale and installation (official seal)	
Address of service center in charge of sale and installation	
Telephone of service center in charge of sale and installation	

Remark: the information is the important basis for after-sale service. Therefore, please carefully fill the relevant information and inspect it, as well as property keeping it.

After-sale Service Card of Hamaton TPMS

Copy for service center

TPMS model:	Installation date:
Vehicle brand and model:	License plate number:
Signature of person in charging of installation:	Signature and telephone of the consumer:
Service center in charge of sale and installation (official seal)	
Address of service center in charge of sale and installation	
Telephone of service center in charge of sale and installation	

Remark: the information is the important basis for after-sale service. Therefore, please carefully fill the relevant information and inspect it, as well as property keeping it.

After-sale Service Card of Hamaton TPMS

Copy for factory

TPMS model:	Installation date:
Vehicle brand and model:	License plate number:
Signature of person in charging of installation:	Signature and telephone of the consumer:
Service center in charge of sale and installation (official seal)	
Address of service center in charge of sale and installation	
Telephone of service center in charge of sale and installation	

Remark: the information is the important basis for after-sale service. Therefore, please carefully fill the relevant information and inspect it, as well as property keeping it.

Maintenance record for Hamaton TPMS

* The table shall be filled in by the maintenance technician

Maintenance Record One	
TPMS model:	Maintenance date:
Name of the maintenance unit:	
Address and telephone of the maintenance unit:	
Detailed description on fault:	
Detailed description on maintenance condition:	
Signature of the technician	Signature and telephone of the consumer:

Maintenance Record Two	
TPMS model:	Maintenance date:
Name of the maintenance unit:	
Address and telephone of the maintenance unit:	
Detailed description on fault:	
Detailed description on maintenance condition:	
Signature of the technician	Signature and telephone of the consumer:

Maintenance record for Hamaton TPMS

* The table shall be filled in by the maintenance technician

Maintenance Record Three	
TPMS model:	Maintenance date:
Name of the maintenance unit:	
Address and telephone of the maintenance unit:	
Detailed description on fault:	
Detailed description on maintenance condition:	
Signature of the technician	Signature and telephone of the consumer:

Maintenance Record Four	
TPMS model:	Maintenance date:
Name of the maintenance unit:	
Address and telephone of the maintenance unit:	
Detailed description on fault:	
Detailed description on maintenance condition:	
Signature of the technician	Signature and telephone of the consumer:

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, and (2) this device must accept any interference received, including interference that may cause undesired operation. Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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. 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. However, there is no guarantee that interference will not occur in a particular installation. 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.