

VALOR GENUINE PRODUCTS



Application Models: Buses & Trucks & Fleets & OTR

- It is highly appreciated to buy the genuine products of Valor
- Please read this user's manual carefully to make sure correct operation
- Do not use other ways of operating that is not included in this manual



User's Manual for TPMS-203

The Second Edition

Copyright 2009 reserved

Shanghai Baolong Automotive Corporation reserves the right to change the contents of this manual at any time and without notice. The information contained in this manual is proprietary and must not be reproduced without prior written consent from Shanghai Baolong Automotive Corporation.

ATTENTION

Default values have been assigned to each axle for the following:

- Standard Cold Inflation Pressure (SCIP)** — you can find on the tire sidewall;
- Baseline Pressure** — 6Bar/87PSI (default value, can be reset by user according to SCIP);
- Low Pressure Warning** — -20% deviation from baseline pressure;
- High Pressure Warning** — +30% deviation from baseline pressure;
- High Temperature Warning** — set to 80°C / 176°F;
- Leakage Warning** — air lost is more than 0.33Bar / 4.8PSI in 16 seconds

No tractor ID box and trailer ID box are provided for buses or straight trucks, so you can flip over these parts with "X".

	Part I			Part II	Part III	Part IV	Part V
	1.1	1.2	1.3				
Buses							
Straight Trucks		X	X			X	

▲ Please read this Manual carefully before using this product.

▲ TPMS-203 has been developed specifically to address the challenges of tire pressure monitoring on large-scale and multi-wheeled fleets.

▲ TPMS-203 is designed to monitor tire pressure and temperature. It is not designed to provide warning of sudden critical tire damage and blowout caused by external effects. The driver should react promptly to any warning and correct the problem.

▲ Tires can fail for other reasons besides low pressure or overloading. Always be on the alert for any other tire problems as indicated by unusual noises, vibrations, uneven tread wear, or bulges on the tire! If any of these symptoms occur, have the tires checked immediately by a professional staff!

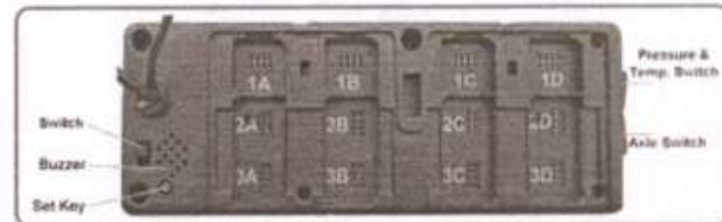
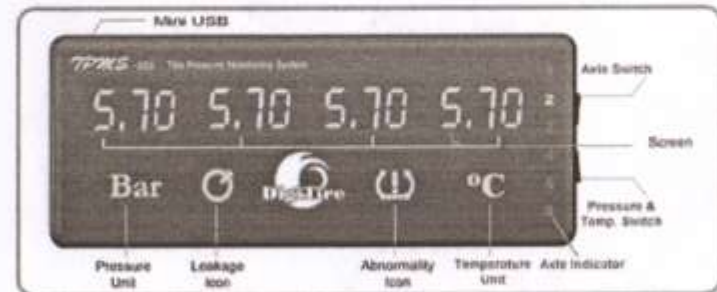
TABLE OF CONTENTS

PART I INTRODUCTION	1
1.1 INTEGRATED DISPLAY.....	1
1.2 TRAILER ID BOX.....	2
1.3 TRACTOR ID BOX.....	2
Part II OPERATION	3
2.1 GETTING STARTED.....	3
2.2 CHECKING TIRE CONDITIONS.....	3
Part III WARNINGS	4
3.1 LOW PRESSURE WARNING.....	4
3.2 HIGH PRESSURE WARNING.....	4
3.3 LEAKAGE WARNING.....	5
3.4 HIGH TEMPERATURE WARNING.....	5
Part IV TRAILER CHANGE	6
Part V WHEEL ROTATION	7
5.1 USE TPMS SMART TOOL.....	7
5.2 CHANGE ID MODULE POSITION.....	7
Part VI REPLACE DAMAGED TRANSMITTER	8
6.1 REWRITE NEW ID NUMBER.....	8
6.2 REPLACE ID MODULE.....	8
Part VII RESTART DISPLAY AND TRAILER ID BOX	9
PART VIII TROUBLE SHOOTING	10
PART IX PARAMETERS OF THE PRODUCTS	12
PART X CERTIFICATES & AWARD	13
8.1 FCC'S AUTHENTICATION ANNOUNCEMENT.....	13
8.2 EUROPEAN REGULATIONS ANNOUNCEMENTS.....	13
8.3 CE DIRECTIVE ANNOUNCEMENT.....	13
8.4 AWARD FROM AAPEX SHOW.....	错误! 未定义书签。
PART XI WARRANTY POLICY	14

PART I INTRODUCTION

1.1 Integrated Display

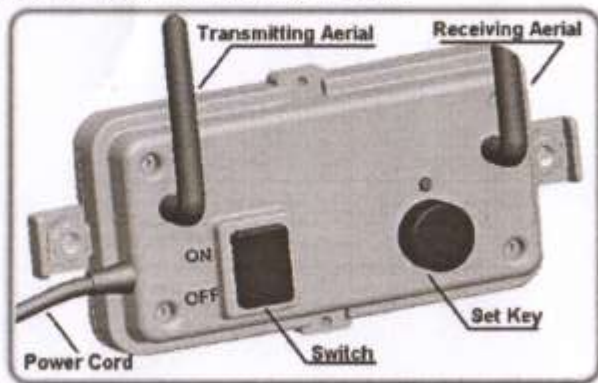
The display monitors pressure and temperature information of each tire in a visual form continuously. It can provide 6 axles up to 24 tires' data as well as enabling baseline pressure adjustment to suit different tires.



Controls and Indicators	Functions
Axle Switch	Press it to circularly show the data of each axle
Pressure & Temperature Switch	Press it to scroll through the pressure interface and temperature interface
Axle Indicator	Display circularly shows the data of six axles
Bar	Pressure unit
°C	Temperature unit
Leakage icon	Leakage icon
Abnormality icon	Abnormality icon: low / high pressure and high temperature
Switch	Turn on or off the display
Buzzer	Give audible alert when the tire is abnormal
Set Key	Press it to set baseline pressures of truck according to your tires' cold inflation pressure
ID Module Slot	ID modules are used to register Transmitters' ID code into the display that will recognize wheel positions
Mini USB	To download data from display via RS232/ZIGBEE

1.2 Trailer ID Box

Trailer ID Box is mounted on the trailer to register trailer information and transfer trailer tire data to the display wirelessly. The trailer tire transmitters will automatically register themselves to the tractor display by pressing the set key.



Controls and Indicators	Functions
Receiving Aerial	Collect trailer tires' information
Transmitting Aerial	Send trailer tires' information to display wirelessly
Switch	Turn on or off the trailer ID box
Set Key	Press it to set baseline pressures of trailer according to your tires' cold inflation pressure

1.3 Tractor ID Box



Tractor ID Box is electrified with lithium battery and installed on the tractor within 2 meters from Trailer ID Box. It is responsible to send ID number of display to Trailer ID Box so that the Trailer ID Box can wirelessly communicate with display.

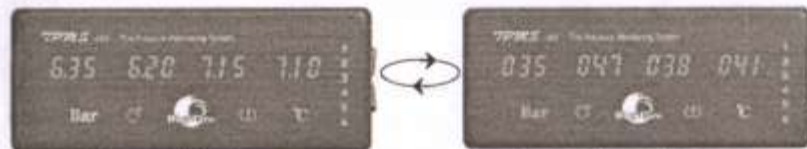
Part II OPERATION

2.1 Getting Started

- For tractor with trailer: turn on the integrated display and trailer ID box, register trailer into integrated display (see 6.1 in Installation Guide) and set the baseline pressure for each axle (see 6.2 & 6.3 in Installation Guide).
- For bus / straight truck / OTR: turn on the integrated display and set the baseline pressure for each axle (see 6.2 in Installation Guide).
- The screen will remain "000" until the data from its transmitter is received. After data from all transmitters is received the display will be in the state shown until an alert or warning condition is detected.

2.2 Checking Tire Conditions

- After data from all transmitters is received, the display will show each axle's data for 5 seconds and automatically shift to next axle when all tires are normal. You can also press Axle Switch to look up tire data quickly.
- The display just circularly shows the axles with abnormality when there are abnormal tires.
- If the pressure warning and temperature warning exist in the same axle, the display just show the pressure warning of this axle.
- Press "Pressure & Temperature Switch" to scroll through the pressure interface and temperature interface.



Pressure Interface Temperature Interface

— No data received from the tire in 20 minutes is shown as dashes "--".

Part III WARNINGS



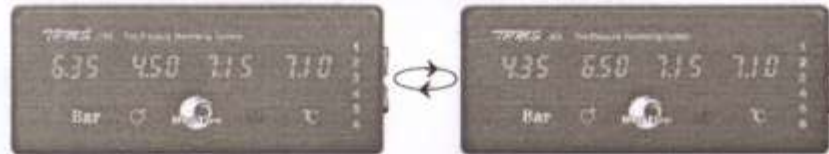
Warning indicates that you are operating your vehicle in a dangerous condition. When the abnormality icon illuminates, STOP AND CHECK your tire(s) as soon as safely possible and inflate them to the proper pressure.

The system has four types of warning modes (provided that the baseline pressure you set is 6Bar / 87PSI):

- 20% below the baseline pressure for the Low Pressure Warning;
- 30% above the baseline pressure for the High Pressure Warning;
- 0.33Bar / 4.78PSI is lost from the tire in 16 seconds for the Leakage Warning;
- Temperature in the tire is over 80°C (176°F) for the High Pressure Warning.

3.1 Low Pressure Warning

When current pressure in the tire is 20% lower than baseline pressure: ①Display shows the pressure of axle with abnormal tire; ②Warning sound "Di-Di"; ③Abnormality icon "(L)" appears; ④The digits of abnormal tire position twinkle.



The figure above shows "1B" tire and "2A" tire are under-inflated. The display just shows axle1 and axle2 automatically and circularly until the problems are corrected.

3.2 High Pressure Warning

When current pressure in the tire is 30% higher than baseline pressure: ①Display shows the pressure of axle with abnormal tire; ②Warning sound "Di-Di"; ③Abnormality icon "(L)" appears; ④The digits of abnormal tire position twinkle.



The figure above shows "3B" tire is over-inflated and "3A" tire is under-inflated. The display just shows axle3 until the problems are corrected.

3.3 Leakage Warning

When 0.33 Bar / 4.78PSI is lost from the tire in 16 seconds: ①Display shows the pressure of axle with abnormal tire; ②Warning sound "Di-Di"; ③Leakage icon "⊙" appears; ④The digits of abnormal tire position twinkle.



The figure above shows "2C" tire is leaking and "1A" tire is over-hot. The display just shows axle1 and axle2 automatically and circularly until the problems are corrected.

3.4 High Temperature Warning

When temperature inside tire is higher than 80°C (176°F): ①Display shows the temperature of axle with abnormal tire; ②Warning sound "Di-Di"; ③Abnormality icon "(L)" appears; ④The digits of abnormal tire position twinkle.



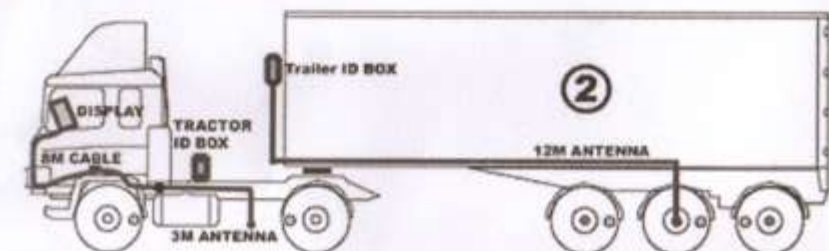
The figure above shows "1A" tire is over-hot. The display just shows axle1 until the problem is corrected.

Part IV TRAILER CHANGE

4.1 Turn off the trailer ID box on trailer ①, disconnect the tractor and trailer ①.



4.2 Connect the trailer ② with tractor.



4.3 Register Trailer: Turn on the Trailer ID Box and press the set key for 4 seconds. Turn on the Tractor ID Box (see 6.1 in Installation Guide).

4.4 Restart the display and trailer ID box (refer to part VII).

Part V WHEEL ROTATION

There are two methods to re-identify rotated tires' position: use TPMS Smart Tool and change ID module.

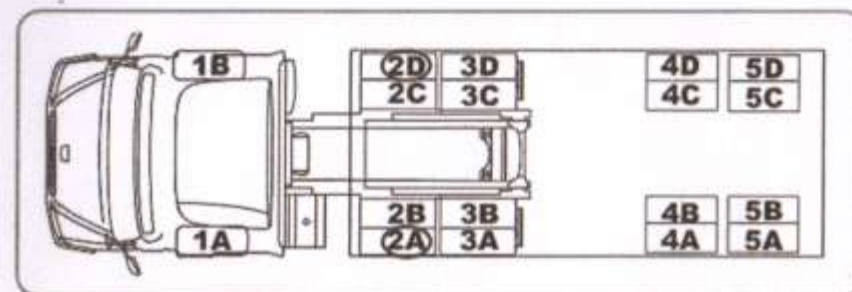
5.1 Use TPMS Smart Tool

If you have got a TPMS Smart Tool in hand, you can use it to wirelessly erase and rewrite the ID code in ID module after tire rotation (See 6.4 in the separate manual of TPMS Smart Tool).

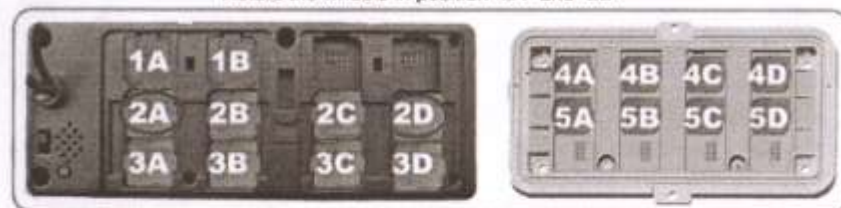
Recommend to use this method on trailer for its convenience.

5.2 Change ID Module Position

Thanks to our unique ID module technology, when you change wheel position later on, you don't need any learn or relearn / register tool. Just change corresponding ID modules' position and restart the display and trailer ID box. Take 18-wheel vehicle for example.



Rotate the wheels in position "2A" and "2D"



Change their corresponding ID modules' position, restart display and trailer ID box

Part VI REPLACE DAMAGED TRANSMITTER

After replacing the damaged transmitter, you should also replace its ID module or rewrite the new ID number into the ID module.

6.1 Rewrite New ID Number

If you have got a TPMS Smart Tool in hand, you can use it to wirelessly erase and rewrite the ID code into ID module after replacing the damaged transmitter (see 6.4 in the separate manual of TPMS Smart Tool).

Recommend to use this method on trailer for its convenience.

6.2 Replace ID module

- Replace the malfunctioned transmitter with a new one.
- Replace the old ID module with a new one came with the new transmitter.
- Restart display and trailer ID box and set baseline pressure (see 6.2 & 6.3 in Installation Guide).

Note: Inflate all the tires up to standard cold inflation pressure when setting baseline pressure.

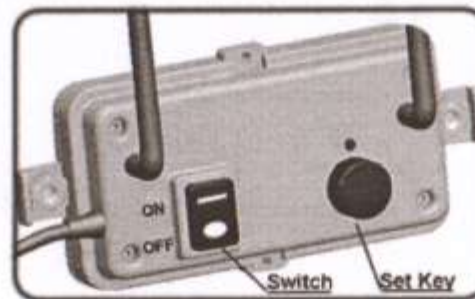
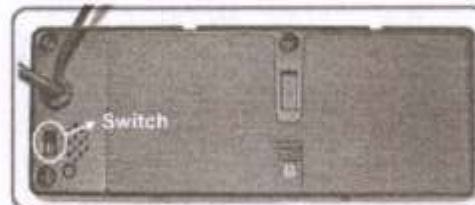
Note: If you have a blank ID module without ID code in it, you can use TPMS Smart Tool to write ID code into it (see 6.1.4 in the separate manual of TPMS Smart Tool).

Part VII RESTART DISPLAY AND TRAILER ID BOX

The system has to be restarted to re-identify the ID module in the following situations:

- 1) Wheel rotation;
- 2) Trailer interchange;
- 3) Replace transmitter & ID module;

To restart the system, please first turn off the display and trailer ID box and then turn them on again.



PART VIII TROUBLE SHOOTING

Problems	Possible Reasons	Solutions
Both pressure value and temperature value of all tires are "000" shown on the display	Problems of antenna connection	Check antenna connection
	The antenna is broken (all transmitters are well)	Replace antenna
	There is something wrong with display	Use a pair of transmitter & ID module and TPMS Smart Tool to confirm. If it doesn't work, replace it
The pressure and temperature values are "000" at one or more transmitter locations	Problem of transmitter	Use TPMS Smart Tool to check it
	Problems of ID module	Pull out the ID module and re-plug in, then restart the display. If problem still exist, do next step Pull out the ID module and plug in other ID module seat, then restart the display. If problem still exist, replace the ID module.
The pressure value is "000", but temperature value is normal.	Air hole of transmitter is air-logged	Replace the transmitter
No values shown on the display and all icon indicators don't shine	Display is turned off	Turn on switch on the back of display
	Power cord is not properly installed	Check power cord connection
	The display is burnt out	Replace display
No values shown on the display, but icon indicator shines	Without ID module in the seat	Plug in ID module
Dash "---" shows on the display	System failure	Restart the system
	Surrounding interference	Leave the surrounding
	Problem of transmitter	Use TPMS Smart Tool to check it
	Problems of ID module	Pull out the ID module and re-plug in, then restart the system. If problem still exist, do next step. Pull out the ID module and plug in other ID module seat, then restart the system. If problem still exist, replace the ID module.
All data does not refresh	System failure	Restart the system and run your vehicle
The display continues to		

show incomprehensible codes		
Values are not being received at a tire location after a transmitter was replaced or a spare tire was installed.	The ID number for the transmitter at that location is not programmed into the receiver	Replace the old ID module with a new one came with the new transmitter. Restart the system and set baseline pressure.
(High or low) Pressure Warning is activated at more or all transmitter locations after the installation is complete	Didn't setup the baseline pressure	Setup the baseline pressure for each axle
The buzzer is continuously chirping and nothing shown on the display	The display does not work	Replace the display

PART IX PARAMETERS OF THE PRODUCTS

Display

Power Consumption: 130 mW (Regular); 230mW (Max)

Power Supply: DC 12/24 Volt

Weight: 231g (8.15 oz.)

Dimensions: 15.5 x 6.2 x 2.3 cm (6.1 x 2.4 x 0.9 inch)

Operating Temperature Range: -40°C to 85°C (-40°F to 185°F)

Pressure Resolution: ±0.01Bar (0.1PSI)

Temperature Resolution: 1°C (1°F)

Transmitter

Weight: 70g (2.47 oz.)

Dimensions: 8.3 x 3.1 x 2.5 cm (3.27x1.22x0.98 inch)

Operating Temperature Range: -40°C to 125°C (-40°F to 275°F)

Pressure Accuracy: ±0.25 Bar / 3.7 PSI (at 0°C ~50°C)

Temperature Accuracy: ± 3°C (5.4 °F)

Battery Life: 5years at 20 hours driving per day

Maximum Range: 13Bar (188PSI)

Frequency: 315MHz OR 433.92MHz

PART X CERTIFICATES & AWARD

8.1 FCC's authentication announcement

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.

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. You can test that if this equipment does cause harmful interference to radio or television reception by turning the equipment off and on.

8.2 European regulations announcements

This device complies with all European Electromagnetic compatibility regulations (95/54/EC and EN300 220-1). The equipment has been tested and found to comply with the above regulations, and in addition it meets the requirements for low powered transmitters/receivers as defined by the relevant radio approval authority. The regulations are designed to provide reasonable protection against harmful interference or susceptibility.

8.3 CE directive announcement

This device complies with the essential protection requirements of Council Directive 89/336/EEC on the approximation of the law of the Member states relating to electromagnetic compatibility. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device can accept any interference received, including interference that may cause undesired operation.

PART XI WARRANTY POLICY

Warranty Statement

Shanghai Baolong Automotive Corporation ("BAOLONG") warrants to end user of its products specified below that its products are free from defects in material and workmanship under normal use and service for the applicable warranty period as described in the Warranty Period section of this Policy. Subject to the conditions and limitations set forth below, BAOLONG will, at its option, either repair or replace any part of its products that proved defective by reason of improper workmanship or materials. Repaired parts or replacement products will be either new or refurbished to be functionally equivalent to new. If BAOLONG is unable to repair or replace the product, it will refund the current value of the product at the time the warranty claim is made.

Limitation of Liability

This warranty covers substantial manufacturer's defects in workmanship and materials. It does not cover any damage to this product that results from improper installation, accident, abuse, misuse, natural disaster, insufficient or excessive electrical supply, abnormal mechanical or environmental conditions, or any unauthorized disassembly, repair, or modification. This limited warranty also does not apply to any product on which the original identification information has been altered, obliterated or removed, has been sold as second-hand.

Products are considered to be monitoring devices and are not to be considered as safety devices. This limited warranty covers only repair, replacement or refund for defective BAOLONG products. All other express or implied warranties, liability for incidental, special, consequential or any other damages including but not limited to, economic loss, lost revenue, lost profits, or loss of use or damage to other property, hereby are expressly disclaimed regardless of whether they were reasonably foreseeable, or whether seller had knowledge that they could occur.

Responsibility

The end user will provide the dealer with dated proof of purchase and access to claimed parts for return. BAOLONG warranty will be honored by the authorized distributor or dealer from which the Product was purchased. Authorized dealers are to contact their regional BAOLONG distributor with warranty claims and questions. Dealers will provide distributor with dated proof of purchase, claimed parts for return upon request, and a completed Warranty Claim Form (Appendix 1). The distributor will be responsible for administering the warranty as per the claims procedure.

Note: Any product returned for warranty without a completed Warranty Claim Form (Appendix 1) will be excluded without consideration.

Exclusive Agreement

This Limited Warranty is a complete and exclusive statement which applies to the BAOLONG TPMS. There are no express or implied warranties beyond those expressly stated above. No employee, agent, distributor, dealer or other person is authorized to give any warranties on behalf of BAOLONG, except as authorized just in writing.

Warranty Period

The term of BAOLONG warranty for its products is warranted against defects in material or workmanship that result in a product failure under normal use during a period of 12 months following the date of purchase by the end user and unlimited mileage. Dated proof of purchase is required. If you do not have a valid proof of purchase, the warranty period will be measured from the date of sale from BAOLONG to the authorized BAOLONG Distributor from whom you purchase.

Remedy

The exclusive remedy for retail system determined by BAOLONG to be defective within such period shall, at the sole option of BAOLONG, be

- (1) The repair or replacement of such defective product, OR
- (2) The refund of the current value (not more than the purchase value) of the product at the time the warranty claim is made.

Products replaced under warranty are covered hereunder by the remaining portion of the original warranty period or 12 months, whichever is greater.

BAOLONG obligation to satisfy a warranty claim is subject to the following conditions:

- (1) Dated proof of purchase is provided
- (2) All such claims must be submitted to BAOLONG no later than sixty (60) days from the date of the failure (the date BAOLONG receives the complaint), and must be accompanied by a Warranty Claim Form (Appendix 1). **No product will be accepted for warranty unless accompanied by a completed Warranty Claim Form (Appendix 1).**
- (3) Some pictures of defective product/part are helpful for remedy.
- (4) If requested by BAOLONG, the product involved shall be returned, freight prepaid, to BAOLONG for examination; and
- (5) Products shipped to BAOLONG must be properly packaged to prevent damage in transit.

Claims Procedure

Warranty claims will only be accepted from an authorized BAOLONG distributor. The following procedure must be followed when making a warranty claim:

1. If you suspect a product defect, contact BAOLONG distributor for assistance in verifying the problem.
2. If a defect is found, provide BAOLONG distributor with Warranty Claim Form along with some pictures of defective parts if possible prior to removing suspected warranty parts.
3. BAOLONG distributor will transform the material above by fax or email to BAOLONG customer service.
4. BAOLONG customer service will gather information and refer the claim to technical service as required.
5. Technical service will assist in troubleshooting, and subsequently determine whether a warranty claim is required.
6. If the warranty claim is approved, customer service will issue return authorization to distributor, who will return the defective products or parts.
7. Product shall be returned, freight prepaid, to BAOLONG along with dated proof of purchase, some pictures and a completed Warranty Claim Form (Appendix 1) to the

following location:

Shanghai Baolong Automotive Corporation

71 Maosheng Road, Dongjing, Songjiang, Shanghai, 201619, China

8. BAOLONG will ship distributor repaired or new product/part without any charge.

All claims submitted must include:

- (1) Dated proof of purchase is provided
- (2) All such claims must be submitted to BAOLONG no later than sixty (60) days from the date of the failure (the date BAOLONG receives the complaint),
- (3) A Warranty Claim Form (Appendix 1)
- (4) Some pictures of defective product/part are helpful for remedy.
- (5) If requested by BAOLONG, the product involved shall be returned, freight prepaid, to BAOLONG for examination;
- (6) Products shipped to BAOLONG must be properly packaged to prevent damage in transit.

BAOLONG reserves the right to reject a warranty claim for any or all of the following reasons:

- (1) Dated proof of purchase is not provided;
- (2) Claims is submitted to BAOLONG over sixty (60) days from the date of the failure (the date BAOLONG receives the complaint);
- (3) No or incomplete Warranty Claim Form (Appendix 1)
- (4) Product was not returned for inspection as requested
- (5) Product inspection does not indicate a failure
- (6) Failure occurred beyond warranty period
- (7) Product damage in transit.

Return Requirements of Defective Parts

Be sure the parts are properly identified and packed

- (1) Each part must be accompanied by a completed Warranty Claim Form (Appendix 1). **No product will be accepted for warranty without a completed Warranty Claim Form (Appendix 1).**
- (2) When shipping parts for several different claims together, do not mix the parts in the same container, box, etc. This could cause confusion in performing a failure analysis, a delay in claim processing, and possible rejection of the claim.
- (3) Pack the parts carefully to avoid shipping damage which could distort or mask the true cause of the failure. Parts lost from broken boxes, damaged shipping containers, or negligence in packaging may result in rejection of the claim.
- (4) Corrosion or rust that prevents proper inspection, or prevents identification of the primary failure, may result in rejection of the claim.
- (5) Rejected parts will be returned to distributor at distributor's expense if the distributor wishes the parts returned.
- (6) Return all parts prepaid to the correct designated location.

Effective Date

This warranty shall become effective October 1st, 2009. This warranty supersedes all past warranties expressed by BAOLONG and may not be changed, altered or modified in any way except in writing by BAOLONG.

Appendix 1 Warranty Claim Form			
Customer:	Distributor:		
Product Information			
S/N(on top of the display):			
Date of Purchase:	Date of Claim:		
Vehicle Information			
Year:	Brand:	Model:	Mileage:
The Standard Cold Inflation Pressure			
Tires Layout (how many axles, how many tires on each axle):			
Length of Vehicle:			
Usage information			
Power connection	Cigarette plug	Hardwire/battery	
Did you accelerate the speed from 0 to 25km/h fastly	Yes	No	
Did you ever change the original transmitter?	Yes	No	
Did you do tire repair recently?	Yes	No	
Detailed Description of Defective Part			
What problems happen when driving or stopping? What shows on display? (pressure, temperature backlight, icon, buzzer)			
Frequency of Problem	Rare	Very often	
Other Description:			
Distributor Signature:			
Parts Needed to be Replaced (Must be returned to Baolong)			
Part Name and S/N Number	Quantity		
Important			
Claim must be submitted within 60 days after failure			
Fill out one claim form for each claim			
Dated proof of purchase is provided			
Some pictures of defective product/part are helpful for remedy.			