



# Instruction Manual

*Radar Object Detection System*

RVS-123





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**WARNING**  
 RISK OF ELECTRIC SHOCK  
 DO NOT OPEN



The Radar Object Detection System uses frequency modulated continuous wave radar technology to detect stationary objects and people in blind spots. This advanced system alerts the operator with both visual and audible warnings. The system has three distinct length and width modes, enabling the operator to adjust the system to fit their needs. The commercial grade heavy-duty system has an IP69K waterproof rating and works perfectly in all weather conditions.

Before permanently installing the system on the vehicle, verify that the sensor mounting location provides a clear detection zone.

Take the vehicle to a clear area, temporarily attach the sensor in the proposed mounting location, apply power to the system, and verify that nothing is being detected. Our system is not affected if multiple systems are operating in the same area or on the same vehicle, even if they are installed in close proximity with overlapping detection ranges. There is no detection of an object closer than approx. 0.3m to the sensor.

*If you have questions about this product, contact:*

**Rear View Safety**  
**1797 Atlantic Avenue**  
**Brooklyn, NY 11233**  
**Tel: 1.800.764.1028**

IN NO EVENT SHALL SELLER OR MANUFACTURER BE LIABLE FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.



Before drilling please check that no cable or wiring is on the other side of the wall. Please clamp all wires securely to reduce the possibility of them being damaged while vehicle is in use. Keep all cables away from hot or moving parts and electrical noisy components.

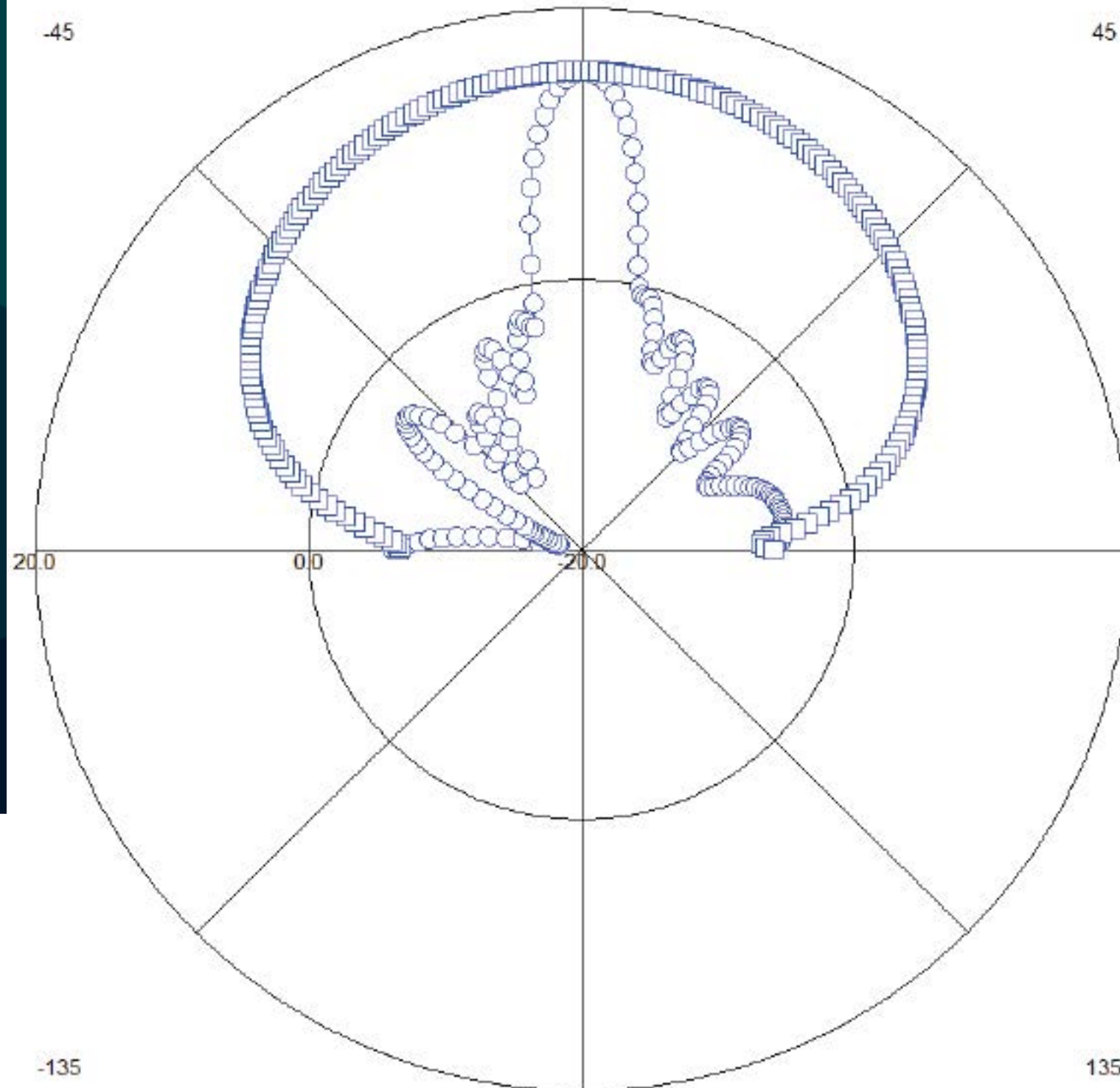
***We recommend doing a benchmark test before installation to insure that all components are working properly.***

PLEASE READ THE ENTIRE MANUAL AND FOLLOW THE INSTRUCTIONS AND WARNINGS CAREFULLY. FAILURE TO DO SO CAN CAUSE SERIOUS DAMAGE AND/OR INJURY, INCLUDING LOSS OF LIFE. BE SURE TO OBEY ALL APPLICABLE LOCAL TRAFFIC AND MOTOR VEHICLE REGULATIONS AS IT PERTAINS TO THIS PRODUCT. IMPROPER INSTALLATION WILL VOID MANUFACTURER'S WARRANTY.

# Radar Sensor Detection Range

Antenna Beam angle  
 Horizontal : 80 °(-3dB)  
 Vertical : 10 °(-3dB)  
 Detection time : < 100ms

Antenna Radiation Pattern



## Changing Detection Modes

1. Long press "Dim" and "Vol" together to adjust mode (LED will flash 3 times).
2. Press "Dim" to toggle Mode 1 ~ Mode 3.  
 Mode 1: 3.5 x 4.0 (L) meter (3 zones)  
 Mode 2: 5.8 x 6.8 (L) meter (5 zones)  
 Mode 3: 7.0 x 8.0 (L) meter (5 zones)
3. Press "Vol" to save desired mode.



## Button Explanation

1. Dim Button: Press "Dim" to adjust LED (3 steps)
2. Volume button: Press "Vol" to adjust volume
3. Factory Reset: Press "Dim" button before turning system on. LED 1 ~ 3 will flash sequentially.

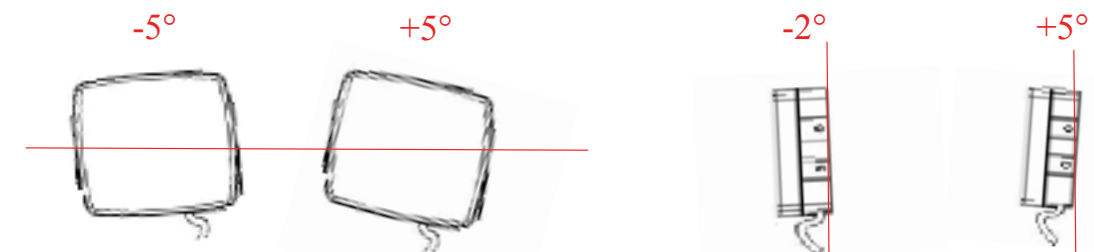
## Sensor Mounting

The installation site should be flat. Ideally the radar sensor should be mounted on the rear of the vehicle as close to the center as possible at roughly 1 meter above the ground. The sensor should be mounted in the upright position with the cable exit on the sensor pointing downwards.

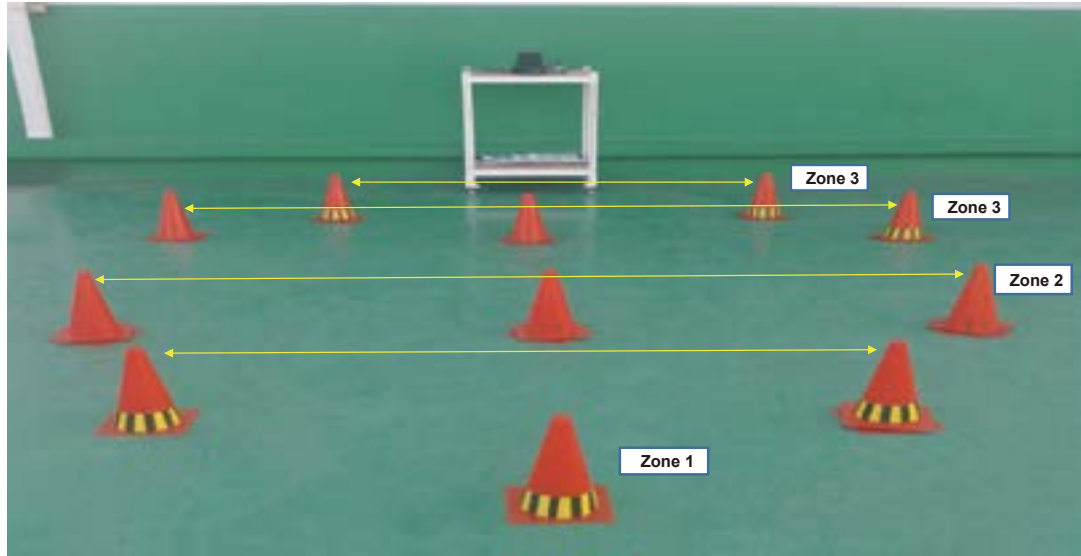
## Mounting Angle

Select the appropriate location to mount the sensor.

- a. Height range (from ground); 1m +/- 0.3 m
- b. Vertical angle range +5 (up), -2° (down)
- c. Horizontal angle range +/- 5



## Mode 1: 3.5 x 4.0 Meter (3 Detection Zones)

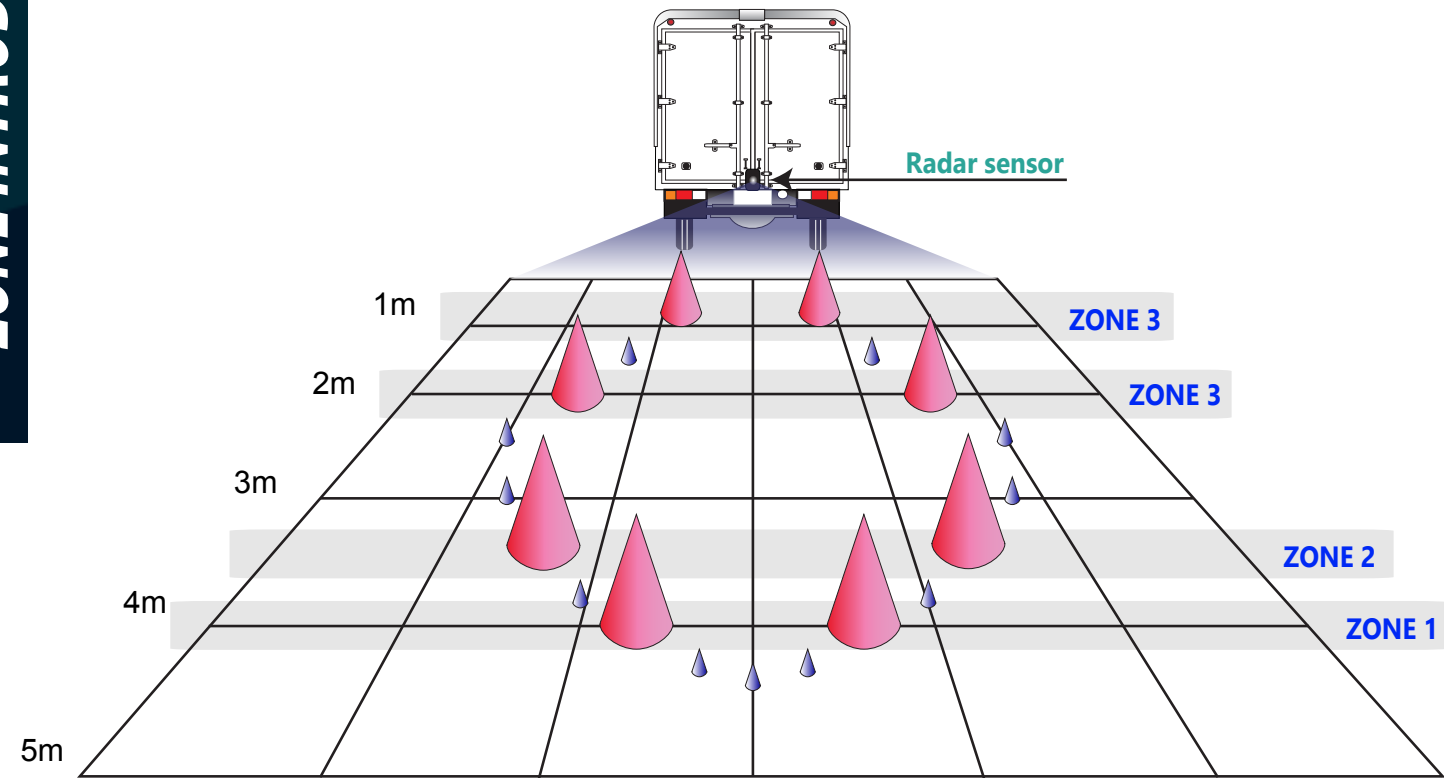


Mode 1.: 3.5 X 4.0 meter  
(Detection zone 3)

Test Conditions  
Radar sensor (Height 1.0 meter)  
Test Person : 1.8 meter tall



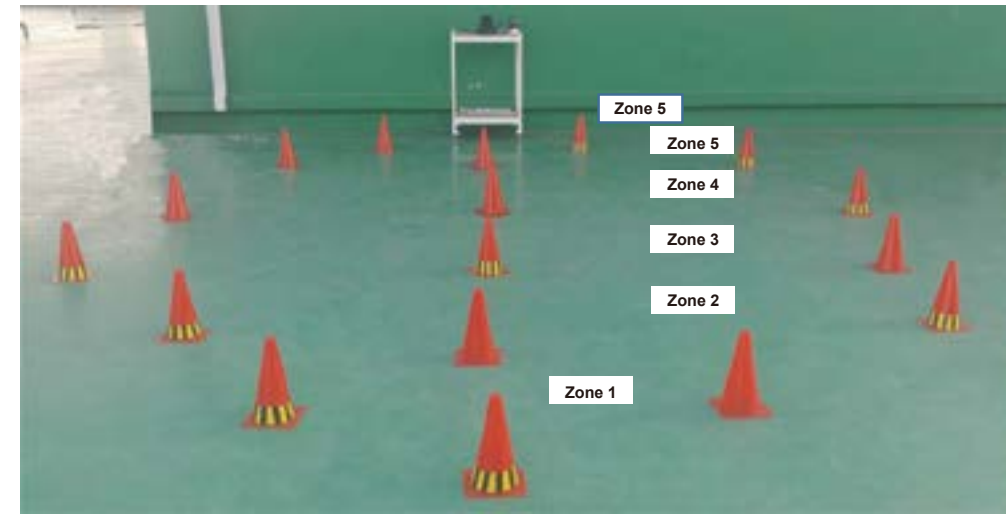
|   | Centerline distance from the radar (m) | Approximate width of the detection area (m) |
|---|--|---|
| <b>Zone 1</b><br>(A Preliminary warning area) | 4.0 meter                              |   |
| <b>Zone 2</b>                                 | 3.5 meter                              | 1.6 meter                                   |
| <b>Zone 2</b>                                 | 2.7 meter                              | 3.5 meter                                   |
| <b>Zone 3</b><br>(Collision area)             | 1.6 meter                              | 2.6 meter                                   |
| <b>Zone 3</b><br>(Collision area)             | 0.8 meter                              | 2.0 meter                                   |



1 Area → 1m<sup>2</sup>

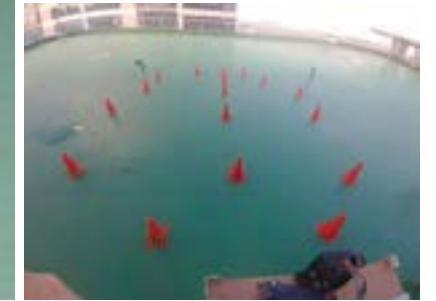
Rear View Safety

## Mode 2: 5.8 x 6.8 Meter (3 Detection Zones)

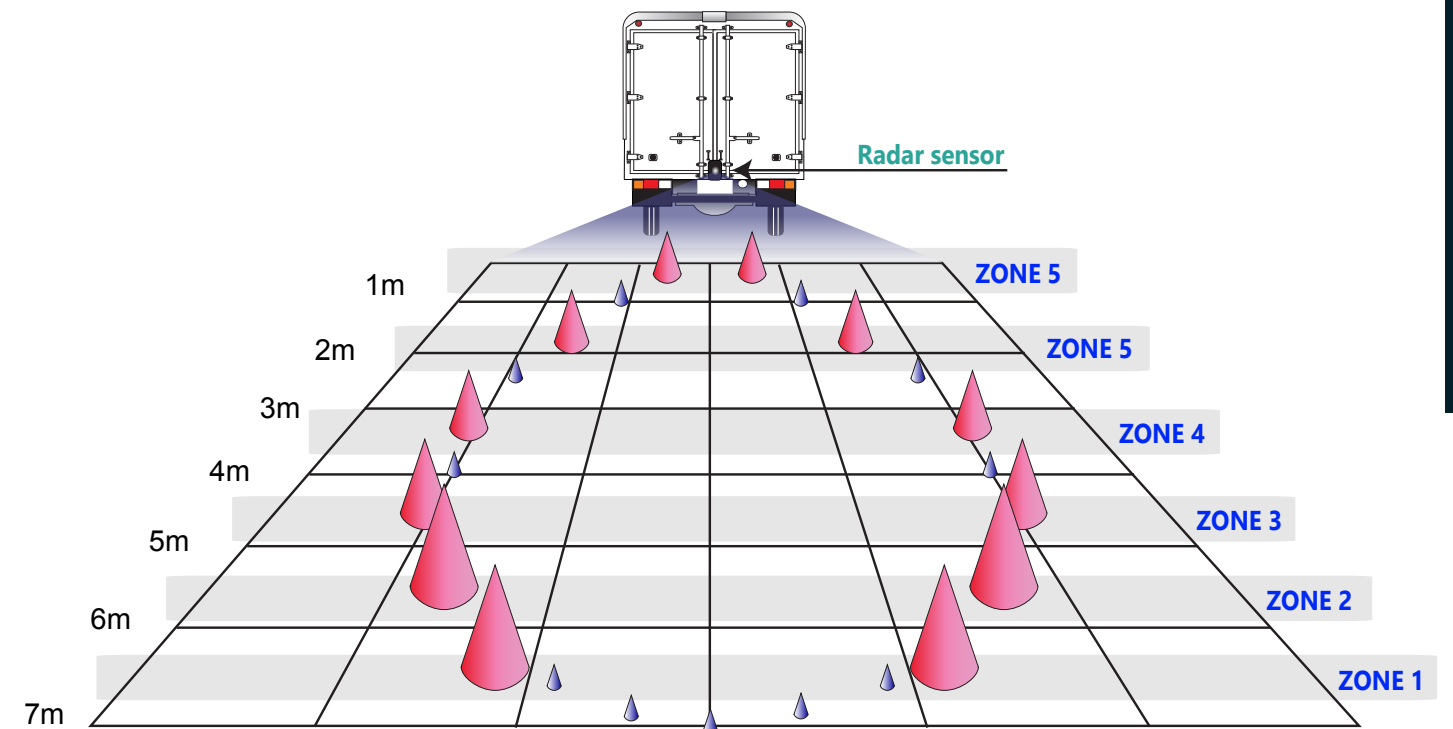


Mode 2.: 5.8 X 6.8 meter  
(Detection zone 5)

Test Conditions  
Radar sensor (Height 1.0 meter)  
Test Person : 1.8meter tall.



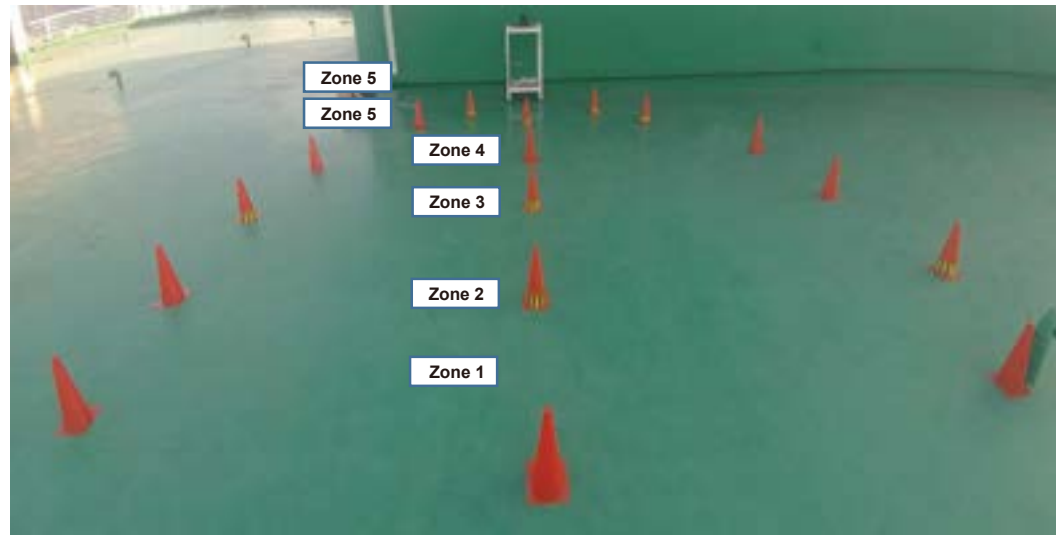
|   | Centerline distance from the radar((m) | Approximate width of the dtetection area (m) |
|---|--|--|
| <b>Zone 1</b><br>(A Preliminary warning area) | 6.8 meter                              |  |
| <b>Zone 2</b>                                 | 6.2 meter                              | 2.3 meter                                    |
| <b>Zone 2</b>                                 | 5.6 meter                              | 4.4 meter                                    |
| <b>Zone 3</b>                                 | 4.1 meter                              | 5.8 meter                                    |
| <b>Zone 4</b>                                 | 2.8 meter                              | 4.5 meter                                    |
| <b>Zone 5</b><br>(Collision area)             | 1.3 meter                              | 2.7 meter                                    |
| <b>Zone 5</b><br>(Collision area)             | 0.8 meter                              | 2.0 meter                                    |



1 Area → 1m<sup>2</sup>

Reverse With Confidence™

# Mode 3: 7.0 x 8.0 Meter (5 Detection Zones)

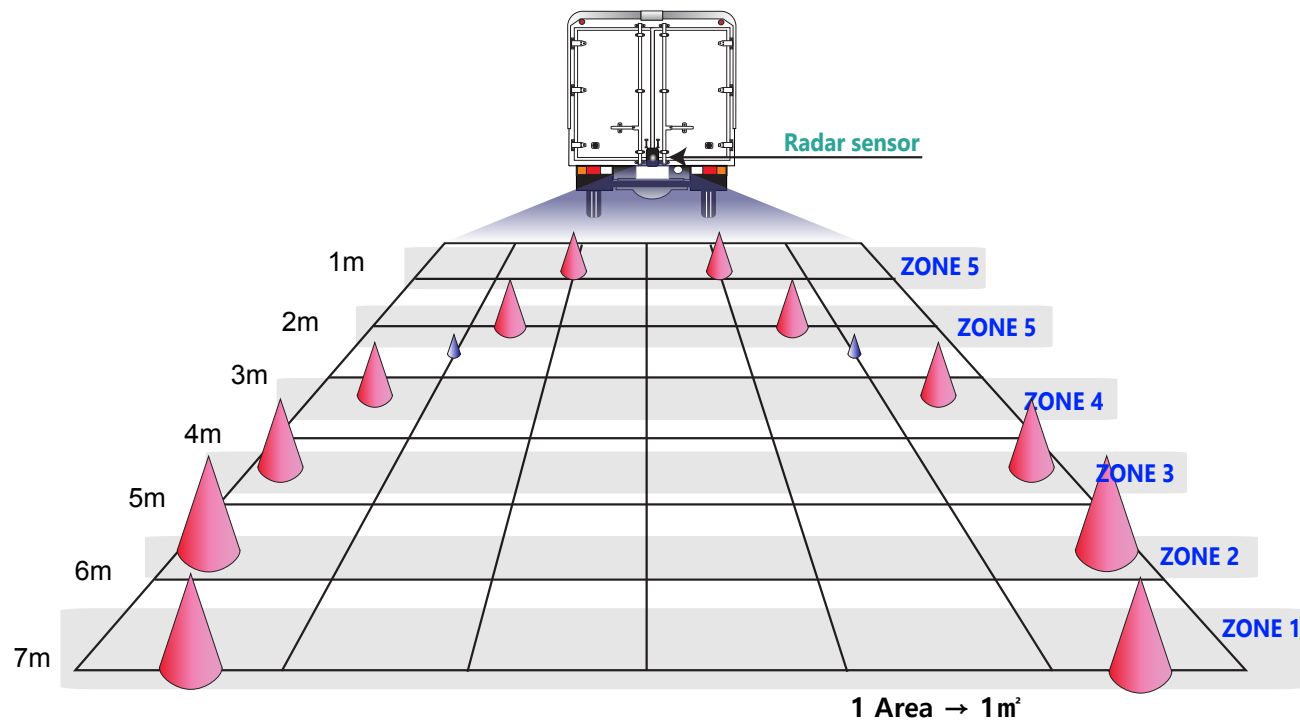


Mode 3.: 7.0 X 8.0 meter  
(Detection zone 5)

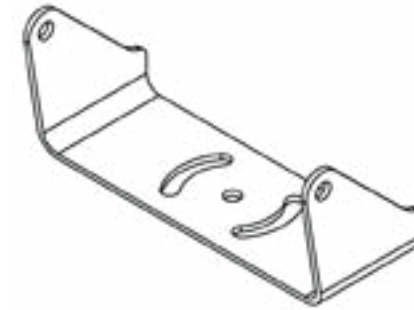
Test Conditions  
Radar sensor (Height 1.0 meter)  
Test Person : 1.8meter tall.



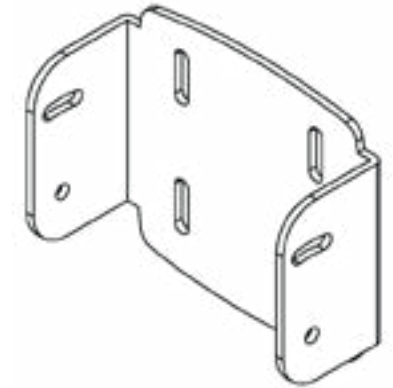
|   | Centerline distance from the radar((m) | Approximate width of the dtetection area (m) |
|---|--|--|
| <b>Zone 1</b><br>(A Preliminary warning area) | <b>8.0 meter</b>                       |  |
| <b>Zone 2</b>                                 | <b>6.3 meter</b>                       | <b>7.0 meter</b>                             |
| <b>Zone 3</b>                                 | <b>4.6 meter</b>                       | <b>7.0 meter</b>                             |
| <b>Zone 4</b>                                 | <b>3.1 meter</b>                       | <b>6.0 meter</b>                             |
| <b>Zone 5</b><br>(Collision area)             | <b>1.8 meter</b>                       | <b>3.8 meter</b>                             |
| <b>Zone 5</b><br>(Collision area)             | <b>0.8 meter</b>                       | <b>2.0 meter</b>                             |



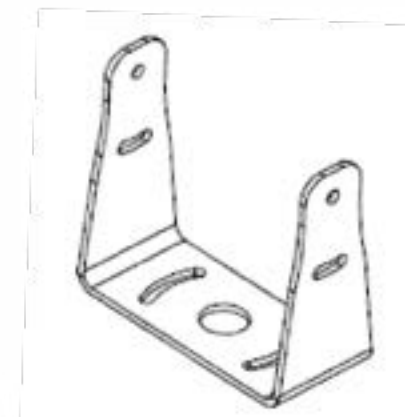
## Accessories



Display Unit Bracket

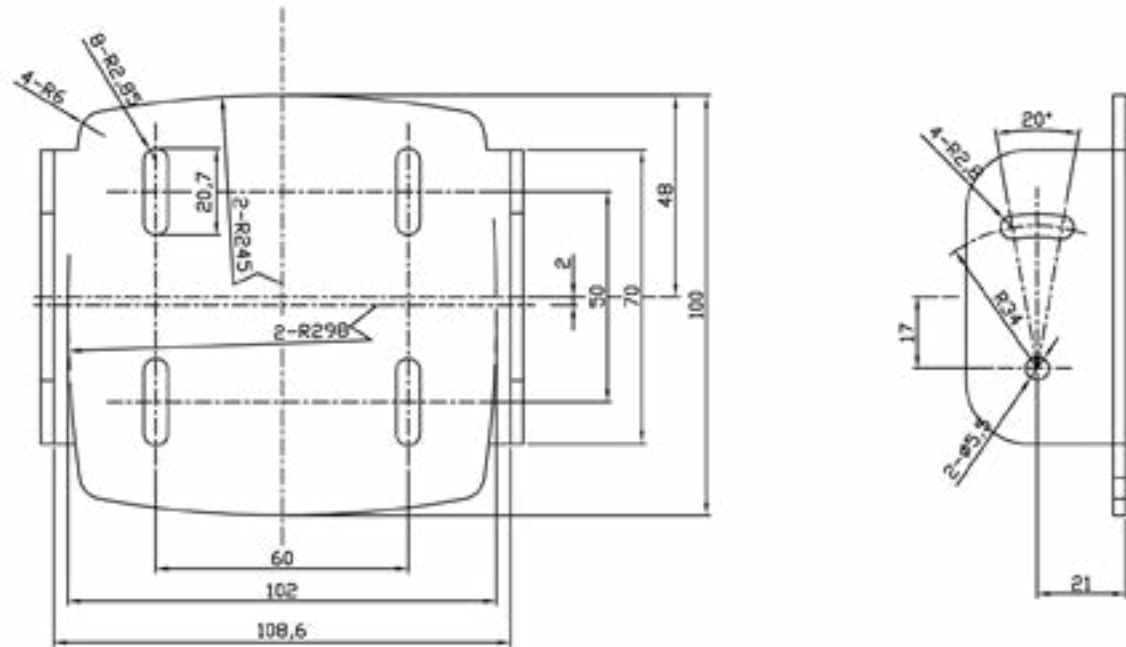


Wall Mount



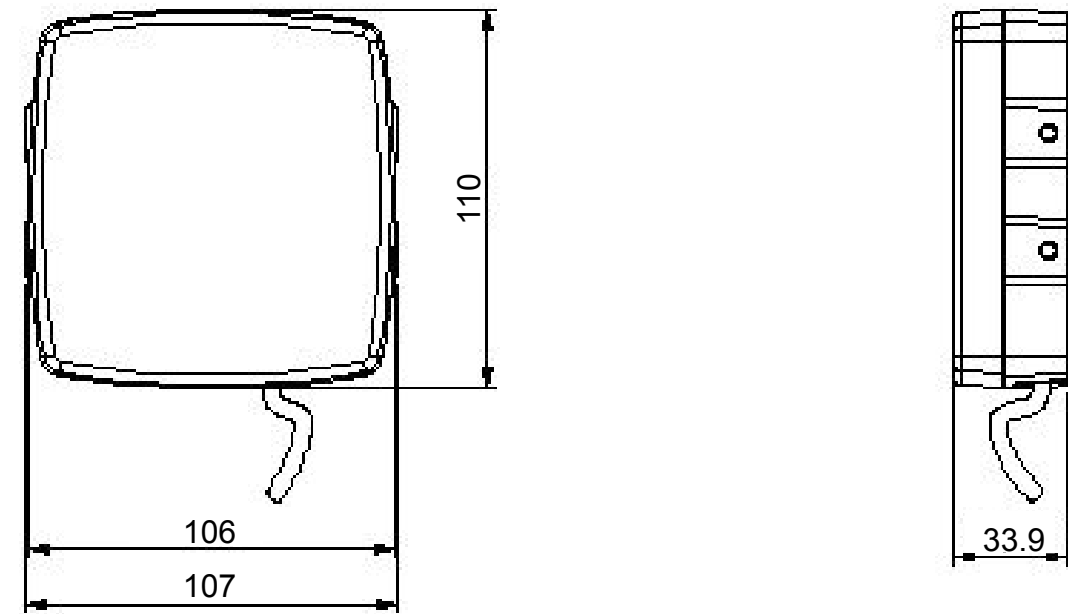
Stand Bracket (Optional)

Dimensions

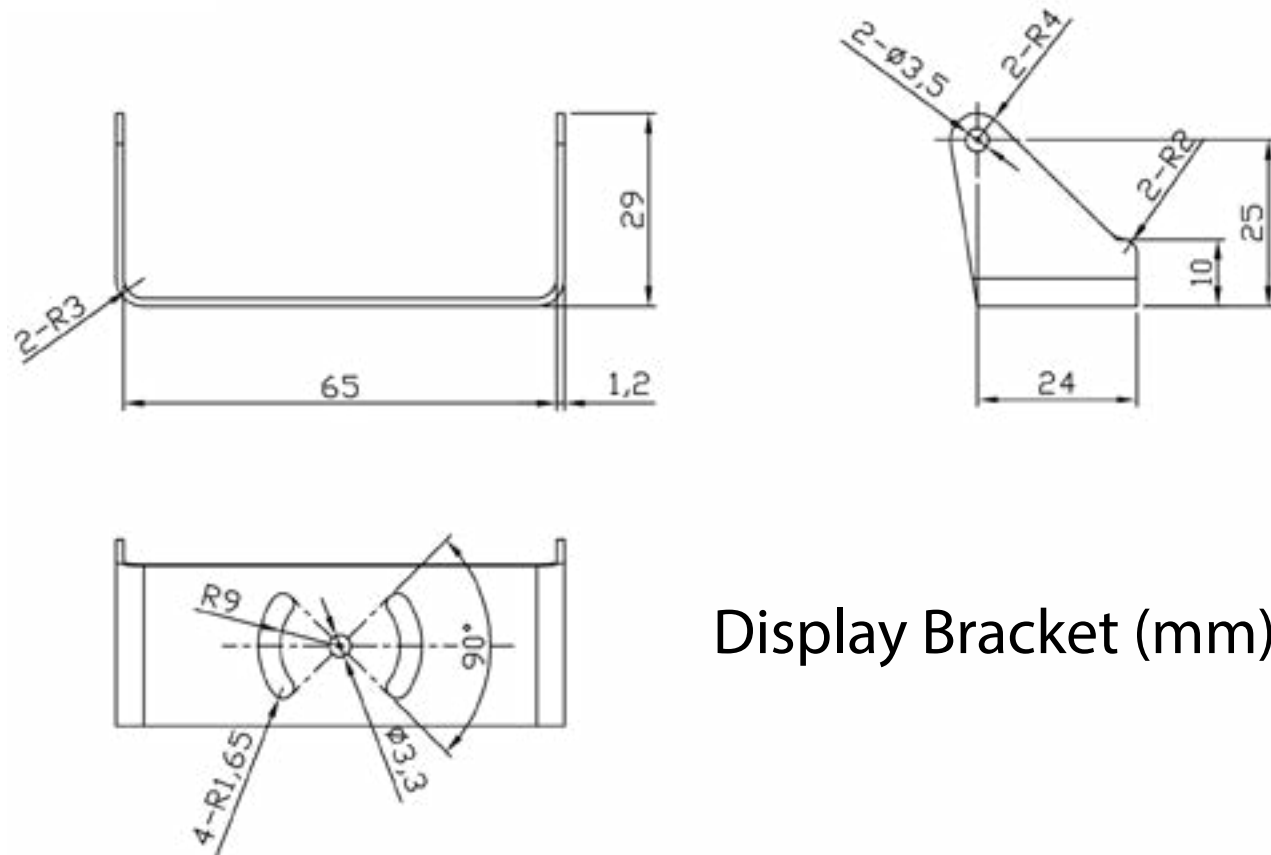


Radar Bracket (mm)

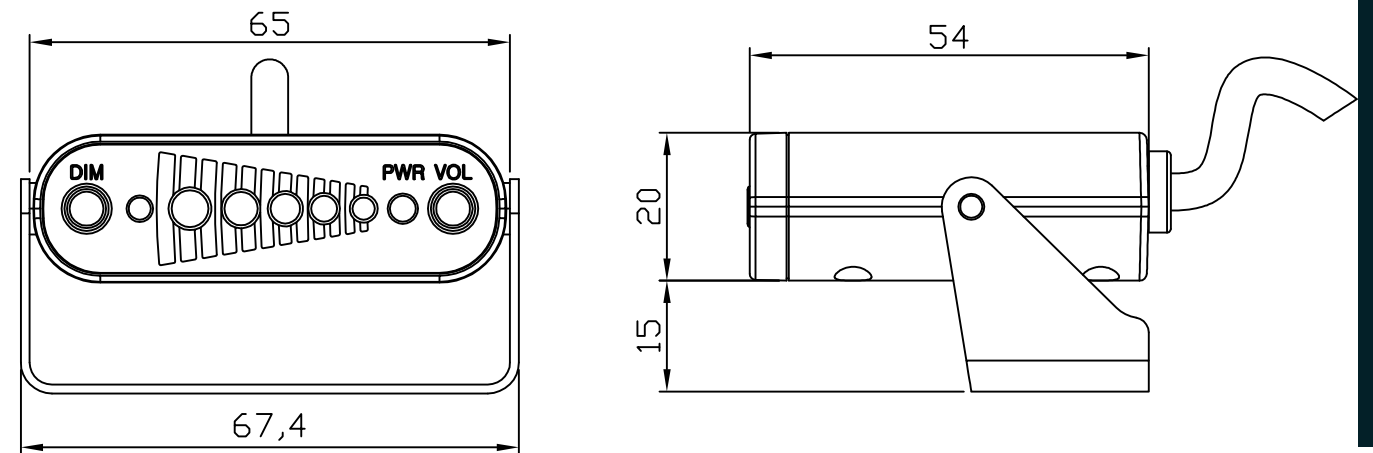
Dimensions



Radar Sensor (mm)



Display Bracket (mm)

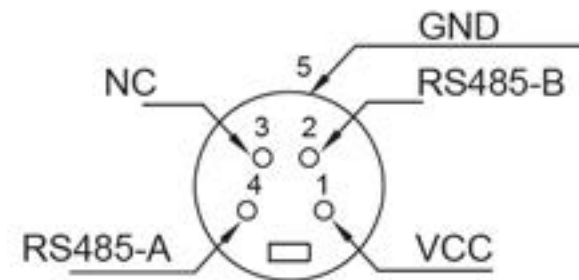


Display Unit (mm)

## Radar Sensor



### • Connector Pin out



### • Rear Cable



### • Pin Assignment

|   | POWER CABLE |       |           | MINI DIN PLUG(4P) |                 |
|---|-------------|-------|-----------|-------------------|-----------------|
|   | COLOR       | SPEC  | NUMBERING | PIN No.           | CABLE           |
| 1 |             |       |           | 1                 | YELLOW          |
| 2 | BLACK       | AWG20 | GND       | 5                 | SHIELD          |
| 3 | WHITE       | AWG20 | ALARM OUT | -                 | -               |
| 4 |             |       |           | 2                 | RED(Shielded)   |
| 5 |             |       |           | 4                 | WHITE(Shielded) |

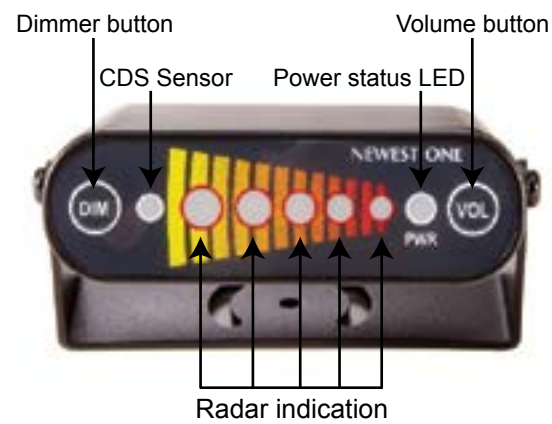
- Trigger output - Controls when other equipment (such as an alarm, is activated).

## Radar Sensor Specs

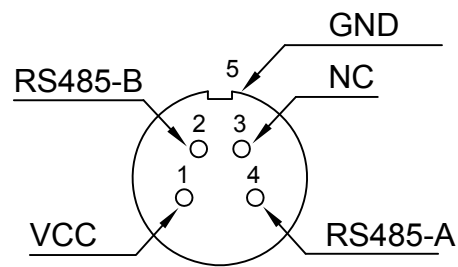
| Parameter             | Value                                     | Units | Condition         |
|-----------------------|---|-------|-------------------|
| Frequency             | 24.05 ~ 24.2                              | GHz   |                   |
| Modulation            | FMCW(Frequency Modulated Continuous Wave) |       |                   |
| Power                 | 5   | V dc  | From display unit |
| Current Consumption   | <100                                      | mA    |                   |
| Power On Time         | <200                                      | ms    |                   |
| Detection Time        | <100                                      | ms    |                   |
| Max Detection Range   | 8   | m     |                   |
| Communication         | RS-485                                    |       |                   |
| Operating Temperature | -40 ~ +85                                 | °C    |                   |
| Waterproof Rating     | IP69K                                     |       |                   |
| Shock Rating          | TBD                                       | G     |                   |
| Dimension             | 4.3" (H) x 4.2" (L) x 1.3" (D)            |       |                   |
| Housing Material      | Polycarbonate                             |       |                   |
| Weight                | 390g w/o bracket<br>720g with bracket     |       |                   |



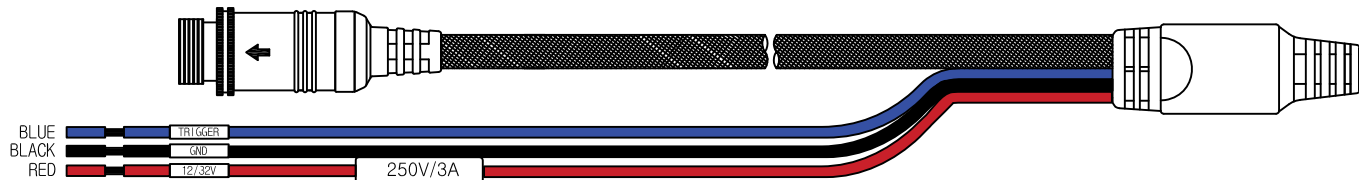
# Radar Display Unit



### • Connector Pin out



### • Rear Cable



### • Pin Assignment

| MIMI DIN 4P (JACK) |     | LEAD WIRE (UL1007 #18) |           |   |
|--------------------|-----|------------------------|-----------|---|
| WIRE Color         | PIN | COLOR                  | Numbering |   |
| -                  | -   | RED                    | 12/32V    | 3 |
| -                  | -   | BLACK                  | GND       | 4 |
| -                  | -   | BLUE                   | TRIGGER   | 5 |
| YELLOW (#26)       | P1  | -                      | -         | 1 |
| SHIELD             | P5  | -                      | -         | 2 |
| WHITE (#26)        | P4  | -                      | -         | 6 |
| RED (#26)          | P2  | -                      | -         | 7 |

### • Cable connection

- Red: + Vehicle power supply (3A fuse: Range +9 ~ +32V)
- Black: Ground (Supply negative)
- Blue : Activation input Trigger from vehicle

**Volume:** Hold volume button for 3 seconds to mute system

**Power Status LED:** Illuminates green continuously when system is powered

**Range Indications:** LEDs move from left to right. More illuminated LEDs indicate a closer object.

**Dimmer Button:** Use this button to adjust brightness of LED. Press Dim for 3 seconds to verify the current mode (LED 1 is least bright, LED 3 is most bright). Long press Dim to verify saved mode (1 ~ 3)

### Radar Display Unit Specs

|                  |                                       |
|------------------|---------------------------------------|
| Detection Zone   | 3 or 5 Zones                          |
| Input Voltage    | 9 ~ 32V                               |
| Operating Temp.  | -30°C ~ +70°C                         |
| Cable Length     | 1.5M                                  |
| Connector        | Deutsch or Screw Lock Type            |
| Housing Material | Polycarbonate                         |
| Dimensions       | 0.07" (H) x 1.9" (L) x 2.25" (D)      |
| Weight           | 200g w/o bracket<br>220g with bracket |

## **ONE YEAR WARRANTY**

REAR VIEW SAFETY, INC. WARRANTS THIS PRODUCT AGAINST MATERIAL DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF PURCHASE. WE RESERVE THE RIGHT TO REPAIR OR REPLACE ANY SUCH DEFECTIVE UNIT AT OUR SOLE DISCRETION. REAR VIEW SAFETY, INC. IS NOT RESPONSIBLE FOR A DEFECT IN THE SYSTEM AS A RESULT OF MISUSE, IMPROPER INSTALLATION, DAMAGE OR MISHANDLING OF THE ELECTRONIC COMPONENTS. REAR VIEW SAFETY, INC. IS NOT RESPONSIBLE FOR CONSEQUENTIAL DAMAGES OF ANY KIND.

THIS WARRANTY IS VOID IF: DEFECTS IN MATERIALS OR WORKMANSHIP OR DAMAGES RESULT FROM REPAIRS OR ALTERATIONS WHICH HAVE BEEN MADE OR ATTEMPTED BY OTHERS OR THE UNAUTHORIZED USE OF NONCONFORMING PARTS; THE DAMAGE IS DUE TO NORMAL WEAR AND TEAR, THIS DAMAGE IS DUE TO ABUSE, IMPROPER MAINTENANCE, NEGLIGENCE OR ACCIDENT; OR THE DAMAGE IS DUE TO USE OF THE REAR VIEW SAFETY, INC. SYSTEM AFTER PARTIAL FAILURE OR USE WITH IMPROPER ACCESSORIES.

## **WARRANTY PERFORMANCE**

DURING THE ABOVE WARRANTY PERIOD, SHOULD YOUR REAR VIEW SAFETY PRODUCT EXHIBIT A DEFECT IN MATERIAL OR WORKMANSHIP, SUCH DEFECT WILL BE REPAIRED WHEN THE COMPLETE REAR VIEW SAFETY, INC. PRODUCT IS RETURNED, POSTAGE PREPAID AND INSURED, TO REAR VIEW SAFETY, INC. OTHER THAN THE POSTAGE AND INSURANCE REQUIREMENT, NO CHARGE WILL BE MADE FOR REPAIRS COVERED BY THIS WARRANTY.

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If you have any questions  
about this product, contact:

***Rear View Safety, Inc.  
1797 Atlantic Avenue  
Brooklyn, NY 11233  
800.764.1028***

***Better Cameras. Better Service.  
IT'S OUR GUARANTEE.***

