

RYDEEN[®]

find your road



Owner's Manual

BSS-ONE

Single Sensor Blind Spot Detection System

V1.0

Contents

1. Welcome Statement & Warnings	2
PRECAUTIONS & WARNINGS	2
2. What's in the Box	4
3. Product Overview	5
Wiring Diagram	5
4. Installation	6
Installation Diagram.....	7
5. Function Introduction	10
BLIND SPOT DETECTION (BSD)	10
LANE CHANGE ALERT (LCA)	11
SYSTEM FUNCTION	12
6. Specifications	12
7. Technical Support Contact Info	13
8. One Year Limited Warranty	13
9. To Obtain Warranty Service	14
10. FCC/ISED Compliance Statement	14
11. Copyright	15
12. Disclaimer	16
13. Troubleshooting	16

1. Welcome Statement & Warnings

Congratulations and thank you for purchasing RYDEEN BSS-ONE, Single Sensor Blind Spot Detection System. We hope you will enjoy using this exciting product and trust that it will make your driving experience more comfortable and hassle-free. Please read this Owner's Manual carefully. After you have finished reading the instructions, keep this document in a safe place for future reference. If you have any further questions about your BSS-ONE operation, feel free to call RYDEEN, Toll Free at 1-877-777-8811 (within USA only) for product support, or visit our website: www.rydeenmobile.com

PRECAUTIONS & WARNINGS

IMPORTANT INFORMATION

PLEASE READ THIS MANUAL CAREFULLY BEFORE USING THE PRODUCT

The BSS-ONE is designed to aid in detecting vehicles that may have entered the vehicle blind spot zone, and will provide you with a safer, more comfortable and convenient driving experience. Therefore, we recommend that you read and follow all the information and instructions in this user manual to make your BSS-ONE achieve the best performance and satisfaction.

- **THE BSS-ONE ONLY WORKS ON VEHICLES WITH PLASTIC BUMPERS. IT WILL NOT FUNCTION/WORK ON BUMPERS MADE OF METAL OR OTHER COMPOSITE MATERIALS LIKE FIBERGLASS OR CARBON FIBER.**
- **The BSS-ONE IS NOT TO replace any functions drivers shall ordinarily perform in driving a motor vehicle, nor does it decrease the need for drivers to stay vigilant and alert in all driving conditions, to obey all the safe driving standards, practices, traffic rules and regulations. ALWAYS LOOK AHEAD, LOOK AROUND, KEEP A SAFE DISTANCE FROM OTHER VEHICLES WHEN DRIVING AND PARKING, DO NOT DEPEND SOLELY ON THE PRODUCT FOR COMPLETE FIELD OF VIEW.**
- **RYDEEN DOES NOT GUARANTEE 100% ACCURACY IN THE DETECTION OF VEHICLES OR PEDESTRIANS, AND THEREFORE DOES NOT GUARANTEE THE PERFORMANCE OF ANY RELATED AUDIO OR VISUAL WARNING SIGNALS. FURTHERMORE, ROAD, WEATHER AND OTHER CONDITIONS**

MAY ADVERSELY AFFECT THE VEHICLE'S BLIND SPOT DETECTION SYSTEM RECOGNITION AND RESPONSE CAPABILITIES.

- Position the unit (LED Indicators) in a location that does not obstruct the driver's view of the road, instruments or vehicle controls.
- Make sure that the BSS-ONE device and the provided bracket or adhesive are properly attached to the vehicle's bumper.
- **DO NOT attempt to modify or disassemble the BSS-ONE unit. Personal injury or damage could result. If a problem occurs, stop using the system immediately and contact RYDEEN. Changes or modifications to the BSS-ONE will void the warranty and its compliance with FCC rules.**
- If you notice any of the following: (Unidentified liquid on the unit; smoke rising out of the unit; unusual odor emanating from the unit) – **STOP USING THE UNIT IMMEDIATELY.** Contact the nearest RYDEEN retailer or call RYDEEN Customer Service for assistance Toll Free @ 1-877-777-8811 (within USA only).
- **DO NOT mount your BSS-ONE on any non-automotive form of transportation (motorcycles, bikes, ATV's, watercraft).**
- The appearance of the product shown in this manual may be different from the actual product, please refer to the actual product.
- The picture examples used in this manual may be different compared to the actual vehicle, please use as reference.

 **WARNINGS** 

- **DO NOT DROP ANY COMPONENTS OF THIS PRODUCT.** Excessive shock due to dropping any components in the system or subjecting it to excessive shock and vibrations may cause malfunction and is not covered by warranty.
- Keep the BSS-ONE unit out of reach of small children.
- **DO NOT** disassemble or modify this product, as there are high-voltage components inside that may cause an electric shock. Be sure to consult your dealer or the nearest authorized RYDEEN service agent for internal inspection, adjustments or repairs.
- **This product cannot guarantee to avoid all incidents.**
- **THE FOLLOWING INSTRUCTIONS ARE RECOMMENDED FOR AUTHORIZED RYDEEN MOBILE INSTALLERS.**

2. What's in the Box

When opening the packaging box of this product, please make sure that all product accessories are complete.



Radar Sensor & Holder



Main Cable



Sensor Extension Cable



Left Indicator



Right Indicator



Buzzer



Drill Bit ($\Phi 14\text{mm}$) & Allen Key (small)



Splice Connector



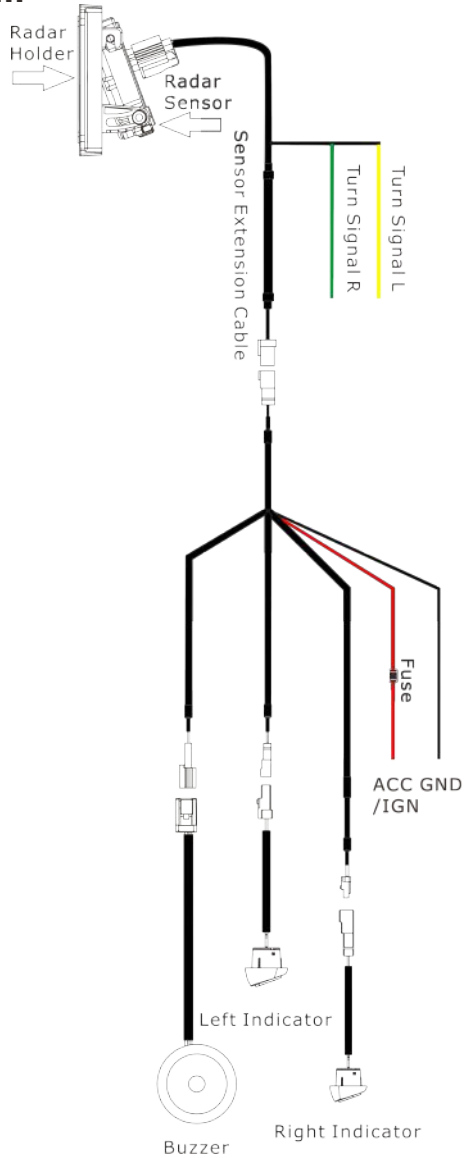
K-520 Primer Adhesion Promoter



Allen Key (large)

3. Product Overview

Wiring Diagram



4. Installation



- **THE FOLLOWING INSTRUCTIONS ARE INTENDED TO GIVE YOU A BRIEF GUIDANCE FOR INSTALLATION. CAREFULLY READ THIS INSTALLATION GUIDE AND ITS IMPORTANT SAFETY INSTRUCTIONS AND WARNINGS PRIOR TO INSTALLING OR USING THE BSD SYSTEM.**
- **THE BSS-ONE ONLY WORKS ON VEHICLES WITH PLASTIC BUMPERS. IT WILL NOT FUNCTION/WORK ON BUMPERS MADE OF METAL OR OTHER COMPOSITE MATERIALS LIKE FIBERGLASS OR CARBON FIBER.**
- **For professional installation only by personnel with specialized training and experience in mobile electronics.**
- **Dropping your BSS-ONE unit or subjecting it to excessive shock and vibrations as this may cause it to malfunction and is not covered by warranty.**
- **Do not install the LED Indicators where it may (i) obstruct the driver's vision, (ii) impair the performance of any of the vehicle's operating systems or safety features, including air bags or hazard lamp buttons or (iii) impair the driver's ability to safely operate the vehicle.**
- **Never install this product in front of or next to the place in the dashboard, door, or pillar from which one of your vehicle's airbags would deploy. Please refer to the vehicle's owner's manual for reference to the deployment area of the airbags.**
- **Secure all wiring with cable clamps or electrical tape. Do not allow any bare wiring to remain exposed.**
- **Make sure that the cables and wires will not interfere with or become caught in any of the vehicle's moving parts, especially brake, doors, or any of the vehicle's controls.**
- **If the wiring of this unit is located under a front seat, make sure it does not obstruct seat movement. Route all leads and cords carefully around the sliding mechanism so they do not get caught or pinched in the mechanism and cause a short circuit.**
- **Do not shorten any leads. If you do, the protection circuit (fuse holder, fuse resistor or filter, etc.) may fail to work properly.**
- **Use only the parts included with the unit to ensure proper installation. The use of unauthorized parts can cause malfunctions.**
- **Never feed power to other electronic products by cutting the insulation of the power supply lead of this product and tapping into the lead. The current capacity of the lead will be exceeded, causing overheating.**
- **Use this unit with a 12-volt operated vehicle and negative grounding only. Failure to do so may result in a fire or malfunction.**

- **Secure the wiring with cable clamps or adhesive tape. Wrap adhesive tape around wiring that comes into contact with metal parts to protect the wiring.**
- **Do not perform installation in rain or fog.**



Do not pull the connectors with excessive force.



Do not pull the harness with excessive force.



Fasten all connectors and terminals securely.

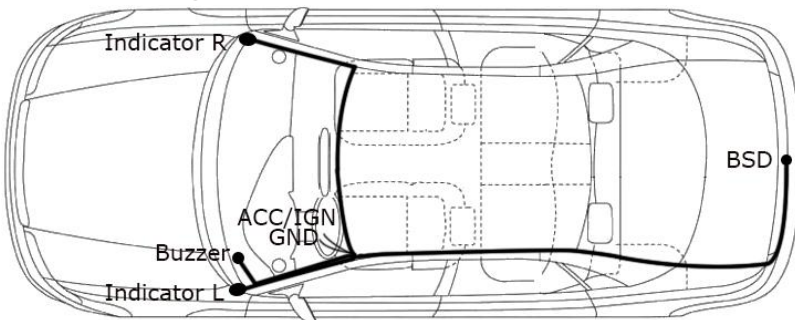


Stress relieve harnesses and secure properly.

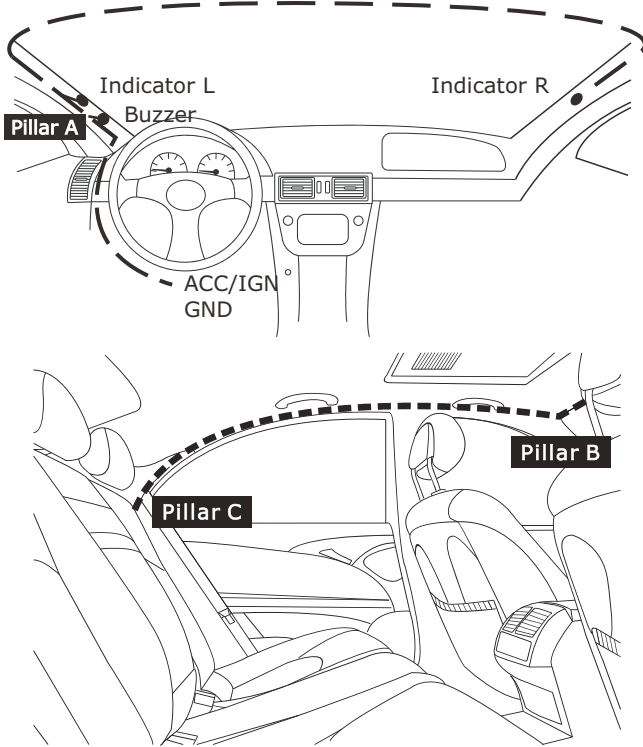
NOTE:

1. Ensure that the connector is inserted correctly according to the corresponding label and the arrow marks of the wire connector at the connection point. When connecting, ensure that the KEY or raised area of the connector mates with the opposite connector. Do not force any connection and ensure that the connector mates properly.
2. To avoid any damage to the connectors, align the arrows on each of the corresponding items, then firmly press connectors together to ensure a good connection. Failure to properly install and connect the system components may cause damage to the product and operation of the system.
3. The radar sensor should be kept in a position with low interference, otherwise it may cause the detection to be insensitive or not work properly.
4. The radar sensor should be kept clean. The adhesion of ice, snow or mud will affect the normal operation of the sensor.

Installation Diagram

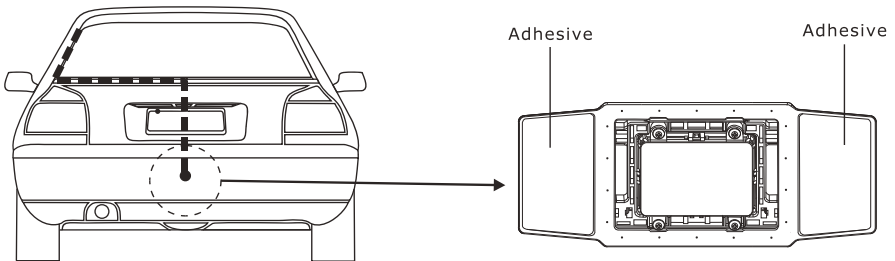


Inside view



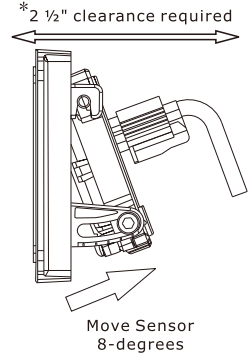
Step 1

Measure the rear bumper to locate a suitable mounting point, align the radar sensor from the centerline of the vehicle, and along this axis, locate a position parallel to the ground 15.5 inches to 31 inches from the ground so that the sensor is mounted inside the bumper. Mark this spot on the outside of the bumper with painter's tape.



Step 2

Using the allen key (large) provided. Adjust the angle of sensor to -8 degree as shown right in the diagram.



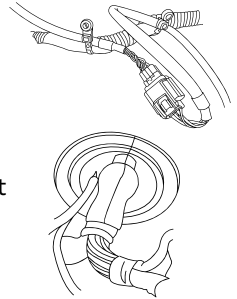
Step 3

Remove the bumper cover and clean the inside of the cover where the sensor is to be placed. The area should be cleaned with alcohol so that the adhesive pad on the sensor assembly may be securely attached. Make sure the attaching surface is smooth, so the adhesive can contact the surface well. If the surface is rough, use sanding paper to make the surface smooth. Clean and remove sanding particles. Affix the sensor to the bumper cover taking note of the direction, orientation, and designated location.

***** PRIMER MUST BE USED*****

Step 4

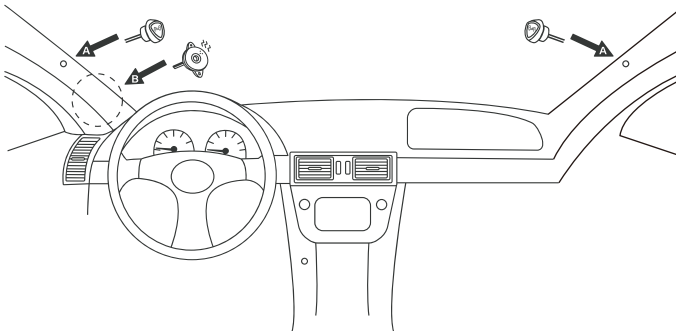
Connect the radar sensor to the harness. Route the harness assembly from the rear exterior of the vehicle into the cabin utilizing a grommet. Secure the harness away from any heat sources and moving parts. Pass the harness through the grommet ensuring the harness and connector do not become damaged. Route the harness to the desired location and affix it to the vehicle using cable ties.



Step 5

Instructions for A. indicator, B. buzzer.

- A. Select locations for the right & left indicators to be installed (lower part of A pillars are recommended for the best visibility), check for clearance behind the panel. Mark the locations to be drilled with the provided tool. Drill holes. Snap into place.
- B. Locate a suitable buzzer installation location for the best audible effect. Affix the buzzer using the adhesive patch or wire ties.



NOTE:

For customers utilizing BSS-MI or TOMBO 360 LED indicators instead of provided LED indicators for A-pillars, please contact RYDEEN Technical Support at tech1@rydeenmobile.com or call 310-787-7880, toll-free 877-777-8811 for installation instructions.

Step 6

Connect each unit according to the wiring diagram (page 5).

Red - Ignition/ACC controlled 12V+ source.

Black - Ground (-) Polarity (Connect to car chassis or ground point).

Step 7

Test the system's operation, ensuring that all features operate according to this manual. After operation is tested, finalize connections and secure wires.

5. Function Introduction

System Activation

1. Start vehicle.
2. Indicator lamps will illuminate for 3 seconds and beep to confirm activation and run self-diagnostics.
3. The Blind Spot Detection System will activate when you start the engine and engage while driving above speeds approximately 13mph (20km/h).

Blind Spot Indicator Lamps

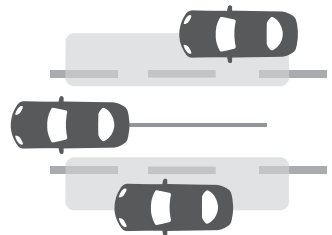
1. The left indicator will illuminate when a vehicle is in your left blind spot while driving. This indicator will flash and an audible tone will sound when your left turn signal is activated while there is a vehicle in the left blind spot.
2. The right indicator will illuminate when a vehicle is in your right blind spot while driving. This indicator will flash and an audible tone will sound when your right turn signal is activated while there is a vehicle in the right blind spot.

The BSS-ONE is designed to aid in detecting vehicles that may have entered the vehicle blind spot zone, which will provide you with a more safe and convenient driving experience.

BLIND SPOT DETECTION (BSD)

When your vehicle speed exceeds 13mph (20km/h), BSD starts detection, and the detection area is the left and right rear of the car. When a vehicle is approaching, the LED indicator on the side of the oncoming car will light up to warn the driver.

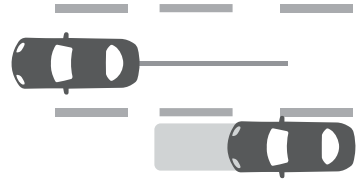
If your vehicle, has it's turn signal activated, and there is an oncoming car approaching, it will enter level II warning, LED flashing & buzzer warning sound to alert the driver.



Level	Warning Way	Detection Zone	Target	Conditions
Level I	LED On (Constant)	*Vertical: 1.6-23 feet (0.5-7m) from radar *Horizontal: 5 feet-14.8 feet (1m-4.50m)	Dynamic vehicle	Overtaken: Vehicle Speed: \geq 13mph (20 km/h) Overtake: Vehicle Speed: \geq 15mph (25 km/h)
Level II	LED Flash & Buzzer On	*Vertical: 1.6-23 feet (0.5-7m) from radar *Horizontal: 5 feet-14.8 feet (1m-4.50m)	Dynamic vehicle	Overtaken: Vehicle Speed: \geq 13mph (20 km/h) Overtake: Vehicle Speed: \geq 15mph (25 km/h) Turn signal ON
Relative Velocity: $> 0.6 \sim < 13\text{mph}$ ($> 1 \sim 20\text{km/h}$) (Overtaken) Overtake: The target vehicle enters the BSD warning area $> 2s$				

LANE CHANGE ALERT (LCA)

When the vehicle speed exceeds 13mph (20km/h), and $TTC < 2s$, the system starts detection. The detection area is the left and right rear of the car. When a vehicle is approaching from behind, the LED on the side of the oncoming car will light up to warn the driver. When the turn signal is activated and the driver prepares to change lanes, if there is an oncoming car behind, the warning light on the side of the oncoming car will continue to flash and give an audible warning. (Level II)



Level	Warning Way	Detection Zone	Target	Conditions
Level I	LED On (Constant)	*Vertical: 1.6feet-98.4feet (0.5m-30m) from radar *Horizontal: 5 feet-14.8 feet (1m-4.50m)	Dynamic vehicle	Vehicle Speed: \geq 13mph (20 km/h) $TTC < 2s$
Level II	LED Flash & Buzzer On	*Vertical: 1.6feet-98.4 feet (0.5m-30m) from radar *Horizontal: 5 feet-14.8 feet (1m-4.50m)	Dynamic vehicle	Vehicle Speed: \geq 13mph (20 km/h) Turn signal ON $TTC < 2s$
Relative Velocity: $> 13 \sim < 25\text{mph}$ ($> 20 \sim 40\text{km/h}$)				

NOTE:

Under certain driving scenarios, the BSS-ONE may detect objects in an unintended way. The following conditions below are examples of scenarios where fault notifications may occur.

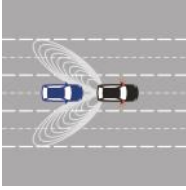


Fig 1



Fig 2



Fig 3

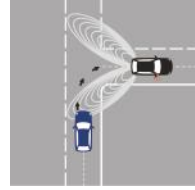


Fig 4

SYSTEM FUNCTION

No.	Mode	Buzzer(890Hz)	Indicator
1	System Turn ON (ACC ON)	Long beep	LED ON for 3 seconds
2	Level I Alert	None	LED ON when system in Level I situation
3	Level II Alert	Short Beep (On 330ms, Off 330ms)	LED Flash when system in Level II situation (On 330ms, Off 330ms)

6. Specifications

Basic Parameters	
Operational Temperature	-40℃ ~ +85℃
Storage Temperature	-40℃ ~ +85℃
Operation Speed	≥ 13 mph (≥ 20 km/h)
Installation Angle	- 8 degrees (+/- 3)
System Function	BSD、LCA
Standard	ISO 16750
Radiation Regulation	FCC / ISED
Alarm Level	Level I : LED On (Constant) Level II: LED Flash & Buzzer On
Hardware Parameters	
Input Voltage Range	12V (9V – 16V)
Power supply	IGN Terminal (12V)
Current Consumption	500mA @ 12V, 6W(max)
Buzzer Alarm	890Hz
FUSE Rating Value	5A
Radar Sensor Parameters	
Water Proof	IPX6/IPX7
FOV	Horizontal: 100°(+/-10°)
Radiation Regulations	FCC / ISED
Frequency	77GHz

7. Technical Support Contact Info

If you have other questions about the **BSS-ONE**, please contact your retailer or Technical Support:

- Telephone: **1-877-777-8811 (within USA only)**
or 1-310-787-7880
- Email: tech1@rydeenmobile.com
- Web Address: www.rydeenmobile.com

8. One Year Limited Warranty

RYDEEN MOBILE (a manufacturer of "RYDEEN" products) warrants product (BSS-ONE) only to the original purchaser as described following:

Warranty Period

Rydeen warrants this product for a period of one (1) year from the original purchase date.

Warranty Coverage

This warranty covers all defects in material and workmanship except as specified below.

1. Any products distributed outside of the USA by Rydeen North America, Inc. (Rydeen) or which is not purchased in the USA or Canada unless the product is purchased through the USA Military Exchange Service.
2. Any product(s) which are purchased from an unauthorized retailer (in store or online).
3. Any products in which the serial number label or the model number label are removed, torn, modified or replicated.
4. Any damage defects or malfunctions resulting from any of following:
 - a) When defect occurs during shipment of product (freight carrier's responsibility).
 - b) Installation or removal of product.
 - c) Accidents, act of nature, misuse, abuse, neglect, unauthorized product modification or failure to follow product owner's manual instructions.
 - d) Any repair or attempt to repair without RYDEEN authorization.
 - e) Any other cause which is not related to product defect.
 - f) Any cosmetic damages due to normal wear and tear.
 - g) Any consumable items (such as fuse or batteries).

If any problems develop with your Rydeen products during or after the Limited

Warranty Period, or if you have any questions regarding the operation or installation of the product, you should contact your Rydeen retailer. If the problem or your question is not handled to your satisfaction, please contact Rydeen Customer Service Department at 1-877-777-8811 (within the USA only) Monday-Friday between 9:00 AM to 4:00 PM Pacific Standard Time or visit www.Rydeenmobile.com.

9. To Obtain Warranty Service

If warranty service is required for your Rydeen product:

1. Please call Rydeen Customer Service Department at 1-877-777-8811 (within the USA only), Monday–Friday between 9:00 AM to 4:00 PM Pacific Standard time and obtain a Return Authorization Number ("RA") Number.
2. Please pay for any shipping charge to Rydeen Customer Service Department. Rydeen will pay the return shipping charge, if the repair or service was performed during the warranty period. Rydeen will ship freight collect (recipient is responsible for shipping charge) if Rydeen determine the service was performed outside of warranty period or exclusions described above. Rydeen will not accept warranty service requests from outside of the U.S.A. even if product was purchased in the USA.
3. Please include a copy of your original purchase receipt including Rydeen product model number, purchase date, retailer name/address and a RA Number whenever your product is sent for warranty service.
4. Rydeen will pay for all labor and material expenses for covered product during warranty period.
5. Shipping address for Rydeen Customer Service Department is following:
Rydeen North America, Inc. (a manufacturer of Rydeen products), 2701 Plaza Del Amo, Unit 705, Torrance, California 90503, USA.

10. FCC/ISED Compliance Statement

FCC Statement:

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.

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and a human body.

ISED Statement:

This device contains licence-exempt transmitter(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) this device may not cause interference,
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

11. Copyright

Intellectual Property Rights of Software are proprietary to RYDEEN North America, Inc. or its suppliers and are subject to copyright and other intellectual property laws. Client's only rights with respect to any RYDEEN North America, Inc. software included with the products shall be provided, under the terms of RYDEEN North

America, Inc. software license. The title to all RYDEEN North America, Inc. Software remains with RYDEEN North America, Inc. Client agrees that RYDEEN North America, Inc. retains ownership of all rights, title and interest in all intellectual property, works of authorship, trade secrets and the like in all aspects of the Product(s). Client and its affiliates and subcontractors agree not to reverse engineer any aspect of the Software and/or Products supplied under this agreement and further agree to pay assessed damages should such action take place.

12. Disclaimer

The information in this owner's manual is for general guidance. The images in the manual may be similar to the images shown in the actual product, but they do not exactly match. For all products sold, under the strict conditions of use and installation, we are only responsible for the after-sales of the product itself (the purchased product) (repair or replacement when Rydeen confirms that it is a quality problem). Rydeen is not responsible for other losses and injuries, please kindly note.

13. Troubleshooting

NO.	Issues	Reasons	Solutions
1	The system does not respond after starting the engine	Incorrect connection or control unit failure	Confirm that the IGN, wiring, fuse, and controller are connected.
2	The indicator does not light up	Damaged indicator	Replace the indicator.
		Disconnected indicator	Check the harness and make sure connection is correct.
3	The buzzer makes no sound	Damaged buzzer	Replace the buzzer.
		Disconnected buzzer	Check the harness and make sure connection is correct.
4	No Level I alert	Vehicle speed is less than 13 mph	Normal operation.
		Bad connection from wire harness	Please contact the dealer. Reconnect the wire harness.
5	No Level II alert	Turn signal leads not connected	Confirm turn signal leads are connected.
6	FUSE is blown	Over current / Power surge	Exchange FUSE (5 A)
7	Blind area object detection not consistent or unstable	Not Installed in center	Find the location and in the center of vehicle.
		Installed with wrong angle	Find the correct installation angle of vehicle.



rydeenmobile.com

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