RAKSHA BEAM ASSIST™

USER'S MANUAL

Manufactured by:
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URL : www.autodipper.com : Email: info@autodipper.com

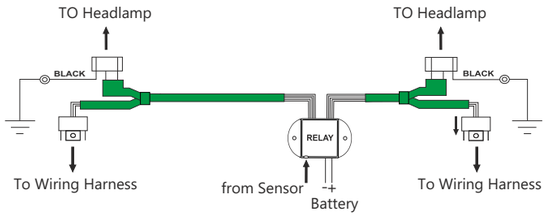
PHILOSOPHY AND OBJECTIVE OF RBA™

RBA™ is based on the philosophy that all the road users need to respect each other's needs in terms of visibility. By allowing proper visibility to the opposite driver, you are trying to avoid an accident which will benefit both you and the opposite driver on the road. **RBA™** enables you to lead and set an example of good and safe driving habit to others.

RBA™ is designed to control the head lamp of the vehicle automatically in a way convenient to the user. The essential objective is to promote night time road safety by minimizing glare. The device is intelligent enough to differentiate lit and unlit roads, measure the vehicle speed and operate the head lamps accordingly. The driver is provided a convenient means to override the decision of the device and hence **RBA™** is integrated with the dipper switch.

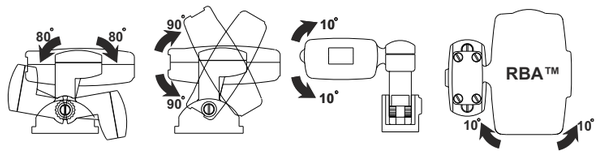
RBA™ - SENSOR UNIT

KNOW YOUR RBA™ - SSR UNIT



MECHANICAL FLEXIBILITY:

RBA™ is designed to facilitate mechanical fitment in all four wheelers within the cabin compartment. The concealed multi core inter connecting electrical cable will come out from bottom or from any side of pedestal for convenience. Please see the following pictures for details.



INSTALLATION OF RBA™

RBA™ is designed to ensure easy installation inside the cabin compartment.

A single universal model is suitable to all four wheelers like cars, buses, trucks etc. The same model is made suitable for 12 and 24V systems having High side or Low side switching.
Please follow the installation procedure carefully for a satisfactory performance.
The next few pages explains the installation in more detail.

The essential steps for Installation of Sensor Unit are

1. Placing the automobile on a level ground.
2. Positioning the SENSOR unit exposing the lens window to the front view.
3. Rigidly fixing the SENSOR unit after leveling the body based on the level vial .
4. Electrical integration.

The essential steps for Installation of SSR Unit are

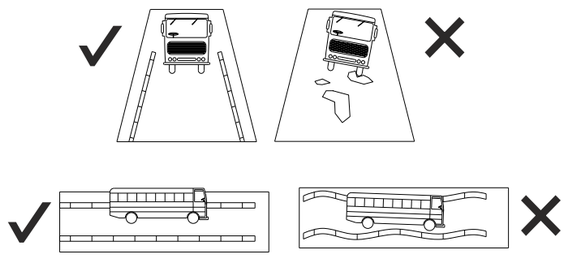
1. Select an area in the Engine Compartment with good Air Ventilation and Fix the SSR Body
2. Unplug the Female Connectors of both Headlamps and Connect them to the SSR harness
3. Now Connect the Female Connectors of SSR harness to the headlamps
4. Connect The Black Cable with Ring Terminal from the female Connector of SSR to Batt Negitive. Connection(Point 4) is common for both LOW side and HIGH side Switching.
5. The Two Power Cables be connected to Battery.
6. **RBA™** Sensor malejack is to be Connected to the SSR.

NOTE: Please refer to Electrical Diagram on Pages 12, 13.

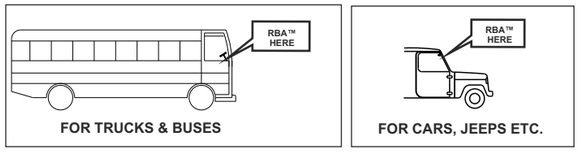
INSTALLATION OF RBA™

VEHICLE PLACEMENT :

Place the vehicle on a level ground. Please see the pictures for guidance.



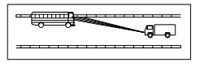
INSTALLATION OF RBA™



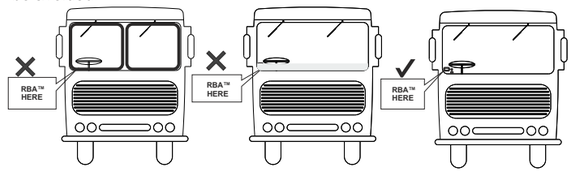
INSTALLATION OF RBA™

LENS LOCATION :

Lens window of the **RBA™** should be behind The windshield so that, the light from the opposite vehicle will reach the lens window.



Wind shield beading, Sun control film or paint etc in front of **RBA™** should be avoided.

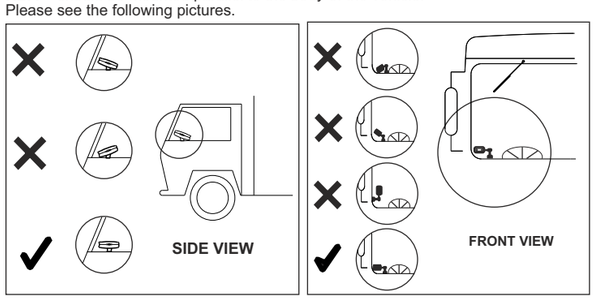


BEADING IN FRONT OF RBA™ | FILM/PAINT IN FRONT OF RBA™ | CLEAR VIEW FOR RBA™

INSTALLATION OF RBA™

MOUNTING:

RBA™ should be mounted parallel to the body of the vehicle.
Please see the following pictures.



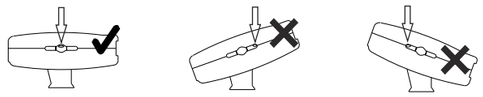
INSTALLATION OF RBA™

FASTENING :

RBA™ can be fastened either to the body frame or dash board upper portion by using fasteners. It can be attached to the wind shield if preferred by using the double side adhesive tape. In this case peel-off the sticker and press the coupler's plain side to the wind Shield to ensure proper grip.

LEVELLING :

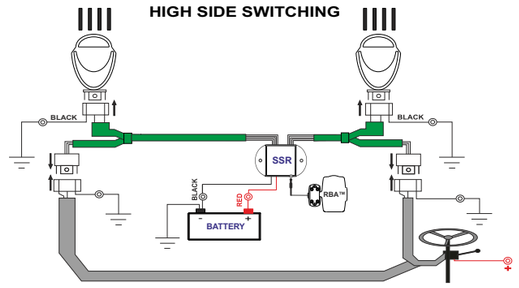
Level the **RBA™**. The bubble should be located at the middle of vial at the time of installation.
The coupler is provided with appropriate means to gradually adjust the level to the required position.



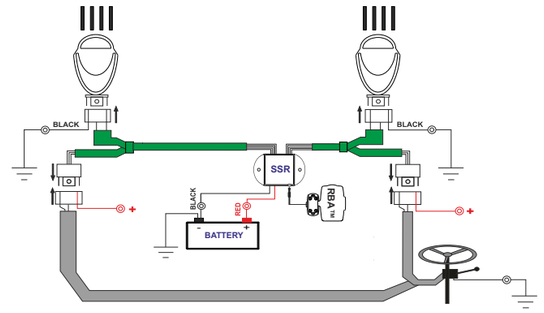
Note : Improper levelling will result in improper functioning. Don't disturb the level once adjusted.

ELECTRICAL INTEGRATION OF RBA™

Electrical Integration is common for all models of automobiles as shown below.



LOW SIDE SWITCHING



OPERATIONAL MODES OF RBA™

RBA™ is built with intelligence to scan the street lighting. The operational mode will automatically change as per road lighting and Speed. This way **RBA™** will adapt itself to city roads and Highways.

LIT ROAD MODE :
The general behaviour of **RBA™** on road which is lit by street lamps is to keep the head lamps in dip beams. At any time override enables the user to go back to Main Beams.

DARK ROAD MODE :
The general behaviour on unlit roads like Highway is to respond mainly to four wheelers from a distance of about 250 meters and to restore main beam automatically at about 100 meters if the opposite vehicle does not dip the lamps. If a convoy of vehicles approach with few vehicles in main beam **RBA™** keeps the lamps in main beam only. However the user can go to dip beam through the override if desired.

SLOW SPEED MODE :
If the vehicle is traveling at < 20kmph **, **RBA™** will Automatically maintain the headlamps in Dip Beam irrespective of opposite traffic and road lighting. However the user can always override the decision of **RBA™** as explained later.

HIGH SPEED MODE :
If the vehicle is traveling at > 90 kmph **, **RBA™** will Automatically maintain the headlamps in High Beam irrespective of opposite traffic and road lighting. However the user can always override the decision of **RBA™** as explained later.

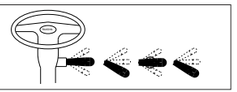
** (Subject to change with out notice)

THE DIPPER SWITCH INTEGRATION WITH RBA™

The existing positions of dipper switch are used as Auto Mode (the present dip beam position) and Override mode (the present main beam position) for easy operation. There is no change in the Flash Position. The dipper switch could be a combination switch or an ordinary switch.

MANUAL OVERRIDE:
A convenient override enables the user to change the decision of **RBA™** at any time and to cater to certain situations like encountering a pedestrian, bullock cart or a motor vehicle with very weak or no head lamps. In this situation one can obtain dip beam by override operation. (Please see page 16) Similarly in some situations if **RBA™** keeps in dip beam and if you desire main beam for additional clarity you can obtain main beam by override operation (please see page 16).

OVERTAKING DURING NIGHT:
If you wish to overtake a vehicle going ahead you can obtain the needed signal by operating the dipper switch as shown here.

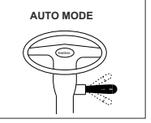


OPERATIONAL CONTROL OF RBA™

The operational control of the **RBA™** is by using the existing dipper switch as shown below.

A. Dipper Switch Position as shown in opposite figure while Head Lamps are turned on

The RBA™ will function automatically.



B. Dipper Switch moved to the position as shown in opposite figure while Head lamps are turned 'ON'

The above movement is a means to manual override and will lead to reversal of the beam by RBA™ either from main beam to dip beam or from dip beam to main beam. The reversal is with reference to the beam maintained by RBA™ while performing in Auto mode under item (a) Above, just prior to override.

OPERATIONAL CONTROL OF RBA™

C. Dipper switch position as shown in opposite figure while head lamps are turned **'ON'.**

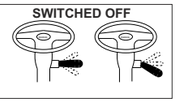
In this position the system will bring into operation both the beams as per the present practice.

D. Dipper switch position as shown in opposite figure while Head Lamps are turned **'OFF'**.

In this position RBA™ will bring into operation main beam only as per the present practice.

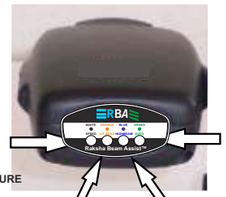
E. Dipper switch position as shown in the opposite figures while Head lamps are turned **'OFF'.**

In this position the RBA™ will keep the head lamps in 'OFF' sate.



DISPLAY OF RBA™

For your convenience **RBA™** will display the road lighting status, the manual dipper switch position and the head lamp beam status as shown below.



SPEED STATUS

SLOW BLINKING : LOW SPEED
CONTINUOUS ON : NORMAL SPEED
FAST BLINKING : HIGH SPEED
CONTINUOUS OFF : SPEED DATA FAILURE

RBA™ MODE STATUS

Continuous'ON' : AUTO MODE
Blinking : OVER RIDE

ROAD LIGHT STATUS

ROAD IS LIT : 'ON'
ROAD IS DARK : 'OFF'

HEAD LAMP BEAM STATUS

HIGH BEAM : 'ON'
LOW BEAM : 'OFF'

IF OVERLOAD OR ZERO LOAD IS DETECTED IN THE SSR UNIT : ALL LED'S WILL FLASH.

TECHNICAL INFORMATION

The illuminance and time response characteristics of **RBA™** are believed to be appropriate for Road Driving. The device is built with intelligence and uses the state of the art Micro Controllers to identify and to respond appropriately to a variety of road situations based on Speed, Glare, Road Lighting, Road Geometry and Manual Dipper Switch Position.

BASIC DETAILS :

1. Power consumption	:	1 Watt max.
2. Input Voltage	:	9 to 30 Volts DC.
3. Output Lamp Load	:	Max 400 Watts.
4. Environmental Parameters	:	As specified under item (h) to (r) of Para 6.1.1 of IS:4062:1986, issued by Bureau of Indian Standards.

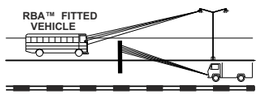
Other details can be furnished on request.

NOTE : Specifications are subject to change without prior notice.

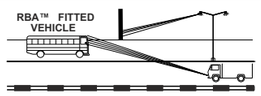
IMMUNITY OF RBA™

RBA™ is highly immune to radiation from Road side stray lamps, road reflections and also solar radiation during late dusk and early dawn. This makes **RBA™** intelligent enough to maintain high beams if vehicular traffic is not detected from opposite direction when the roads are not lit by street lamps. This makes travel on dark road comfortable.

While tracking road light status **RBA™** is immune to vehicular lights.

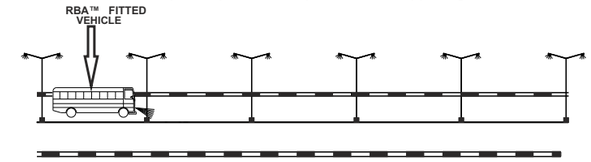


While tracking vehicular light status **RBA™** is immune to street lights.

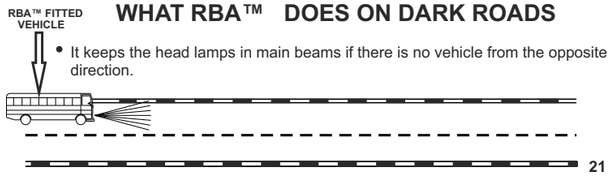


WHAT RBA™ DOES ON LIT ROADS

It keeps the head lamps in dip beam irrespective of the opposing traffic condition.



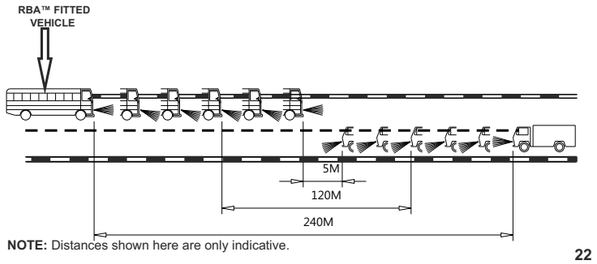
WHAT RBA™ DOES ON DARK ROADS



- It keeps the head lamps in main beams if there is no vehicle from the opposite direction.

WHAT RBA™ DOES ON DARK ROADS

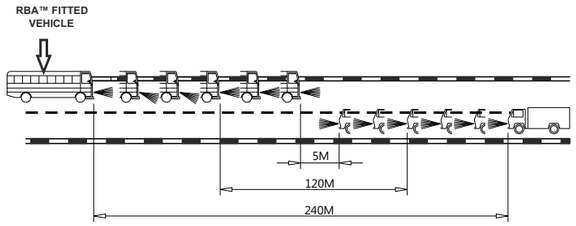
It dips the head lamps automatically on encountering any other vehicle from opposite direction and restores main beam at crossing point if the opposite driver also dips his head lamps.



NOTE: Distances shown here are only indicative.

WHAT RBA™ DOES ON DARK ROADS

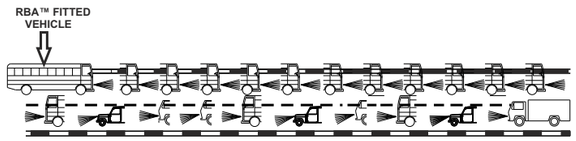
It restores the main beam much before crossing **if the opposite driver does not dip his head lamps within the safe stopping sight distance of about 120 meters.**



NOTE: Distances shown here are only indicative.

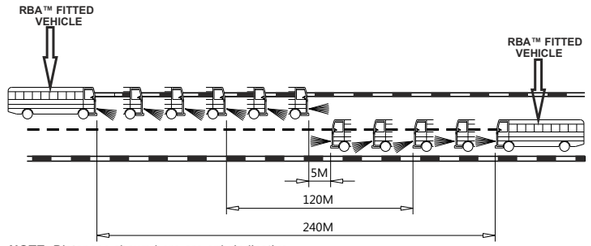
WHAT RBA™ DOES ON DARK ROADS WITH DENSE TRAFFIC

It maintains head lamps in main beams on encountering dense traffic from opposite direction on a dark road.



WHAT RBA™ DOES ON DARK ROADS

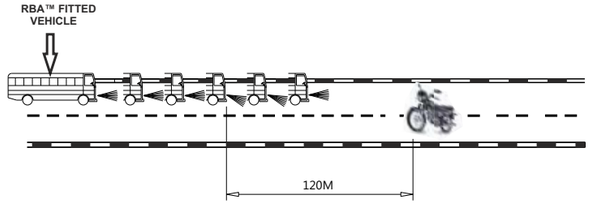
- It dips the head lamps of both vehicles if fitted to both vehicles.



NOTE: Distances shown here are only indicative.

WHAT RBA™ DOES ON DARK ROADS ON ENCOUNTERING A TWO WHEELER

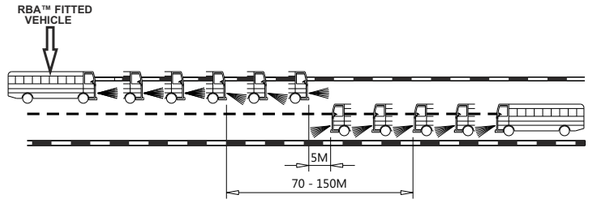
- **RBA™** is intelligent enough to understand and dip the head lamps on encountering a two wheeler with a good head lamp.



NOTE: Distances shown here are only indicative.

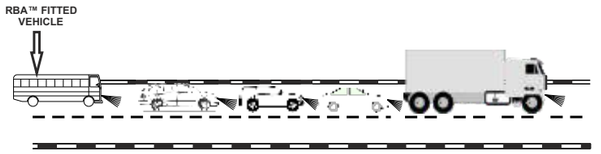
WHAT RBA™ DOES ON DARK ROADS ON ENCOUNTERING A DIPPED BEAM VEHICLE

- **RBA™** is intelligent enough to understand and dip the head lamps on encountering a four wheeler with dip beam.

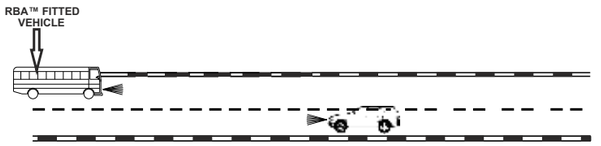


NOTE: Distances shown here are only indicative.

VEHICLE SPEED AND RBA™ FUNCTIONING



It keeps headlamps in dip beams if the vehicle is travailing at <20 kMph.



It keeps headlamps in main beams if the vehicle is travailing at >90 kMph.

(subject to change)

ACTIVATION OF RBA™

RBA™ is designed to enable a convenient drive through the use of existing head lamp ON switch and the Dipper Switch.

SWITCHING ON: RBA™ will be active the moment head lamps are switched ON

SWITCHING OFF: RBA™ will be deactivated the moment the head lamps are switched off.

AUTOMATIC OPERATION :

Once activated **RBA™** operates automatically and shifts head lamps from main beam to dip beam and back to main beams depending on opposing traffic situation. The shifting behaviour will depend on the mode as explained in page 14.

RBA™ A TOOL TO ASSIST THE DRIVER

RBA™ will only Assist the driver and the driver remains responsible while driving and select the Beam according to light, visibility and traffic conditions. The **RBA™** is no substitute for careful attention on the part of the driver. Over ride facility is provided to help the intervention.

Manual intervention may be required in the following situations:

Bad weather conditions caused by rain, snow, ice, heavy spray etc.
On roads where mixed traffic along with animals are likely ex. rural roads, forest roads etc.
Where there are road users with poor or no lights, e.g. cyclists, animal carts, pedestrians etc.
In poorly lit built up areas where pedestrians, children are likely to be present on roads.
Where the windshield in the sensor area is misted, dirty, icy or covered with stickers.

MAINTENANCE OF RBA™

RBA™ does not need any maintenance. However one should remember that

- The lens window of the SENSOR unit should be always clean.
- The SENSOR unit can perform only if the light of the opposite vehicle reaches the lens.
- The lens window should not be touched with oily or greasy hands.

IMPORTANT :

Improper levelling will result in improper functioning. Hence don't disturb the level.

HOW TO DERIVE MAXIMUM BENEFIT FROM USING RBA™ :

The best results of using **RBA™** will be derived only if the head lamp system of a Vehicle is efficient and is in good condition. Use only efficient bulbs of sufficient wattage. This will ensure sufficient illuminance to enable you to have proper vision of the objects on road. Always ensure that the head lamp assembly alignment is proper.

TROUBLE SHOOTING

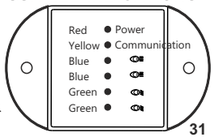
While **RBA™** is designed to give you a trouble free service, it's performance depends on the following contributing factors.

1. Light Signal reaching the **RBA™**. Please ensure that there is no obstruction to the path of the light reaching the lens and the lens is clean from Oil, Grease, Dust coverings etc.
2. If **RBA™** is misaligned, its performance will deviate from the expected results. Please maintain the level as indicated by the level vial.
3. If Headlamp ON/OFF switch is not functional, **RBA™** cannot be activated.
4. If the Head Lamp bulbs are fused or are not connected properly the same may contribute to problems.
5. If all the above are verified and should the problem not solved, you may contact the authorised service representative for assistance.

TROUBLE SHOOTING SSR UNIT

Red LED will be ON when Headlamps Switched ON.
Yellow LED Flash Indicates Sensor Communication failure.
Blue LED flash Indicates short Circuit /Overload/Open Load in HB.
Green LED flash Indicates short Circuit /Overload/Open Load in DB.

SSR LED INDICATIONS



WARRANTY

Raksha Beam Assist™ is warranted against defects arising from manufacture or material defects to the first owner. The warranty is for six months from the date of sale. This warranty shall not apply to defects caused by misuse, neglect, accidental damage or unauthorised service.

This warranty is limited to product replacement only and shall not cover loss or damage caused directly or indirectly on account of use or misuse of the product.

CUSTOMER DETAILS:

1. Name & Address

2. Serial No.
3. Dateofsale.
4. Details of dealer: