RAKSHA

AUTO DIPPER

USER'S MANUAL

Manufactured by:
KAKATIYA ENERGY SYSTEMS PRIVATE LIMITED
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PHILOSOPHY OF RAKSHA

Raksha is based on the fundamental philosophy that all the road users have to respect each other's needs in terms of visibility. By safeguarding the visibility of the opposite driver we are trying to avoid an accident which will benefit us and others on the road. The product also assumes that respect from others has to be earned and not demanded. If we respect the need of others then others will respect our need.

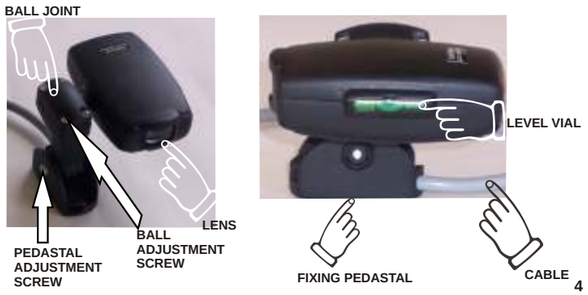
The product enables us to practice what we expect from others. Our practice is the best example which others can follow. The product makes the user to lead and set examples to others of a good and safe driving habit.

Live and let live is the core philosophy of the RAKSHA.

THE OBJECTIVE OF RAKSHA

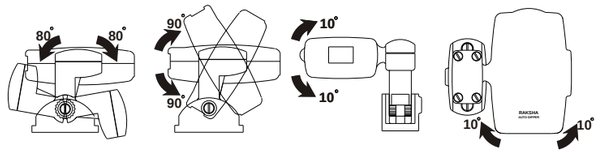
'RAKSHA' is designed to control the head lamps of the vehicle automatically in a way convenient to the user. **The essential objective is to promote night time road safety by minimizing glare**. The device is intelligent enough to understand Lit and Dark roads and operates the head lamps accordingly. The user is provided a convenient means to override the decision of the device. Electrically, it is integrated with the dipper switch and the head lamp relay. The installation and mounting is suggested within the cabin compartment for a durable and reliable performance.

KNOW YOUR RAKSHA



MECHANICAL FLEXIBILITY:

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



INSTALLATION OF RAKSHA

'RAKSHA' is designed to ensure an easy installation within the cabin compartment.

The essential steps are

1. Placing the automobile on a level ground.
2. Positioning the Raksha exposing the lens window to the opposite light signals..
3. Rigidly fixing the RAKSHA after adjusting the level vial .
4. Electrical integration.

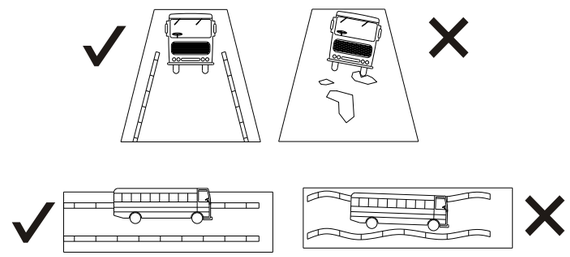
A single universal model is suitable to all four wheelers like cars, buses, trucks etc. The same model is made suitable for 12 and 24V systems having High side or Low side switching. Please follow the installation procedure carefully for a satisfactory performance.

The next few pages explains the installation in more detail.

INSTALLATION OF RAKSHA

VEHICLE PLACEMENT :

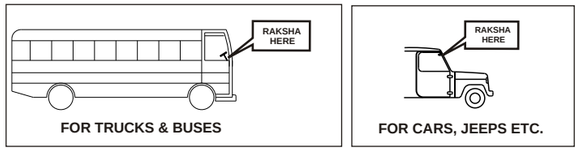
Place the vehicle on a level ground. Please see the pictures for guidance.



INSTALLATION OF RAKSHA

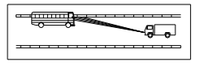
PHYSICAL LOCATION:
Select a suitable position within the cabin compartment of the automobile which is behind the wind shield and at a height of 5 feet +/- 1 foot from the ground. The suggested location for cars and jeeps is the place between the wind shield and the rear portion of cabin rear view mirror. In case of trucks & buses the suggested location is any place over the dash board close to the lower end of the wind shield of the right portion of the cabin compartment.

Please see the pictures given below.

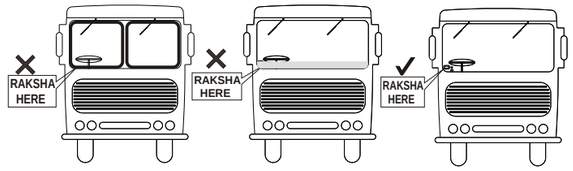


INSTALLATION OF RAKSHA

LENS LOCATION :
Lens window of the "Raksha' should be behind The w indshield s o t hat, t he l ight f rom t he opposite vehicle will reach the lens window.



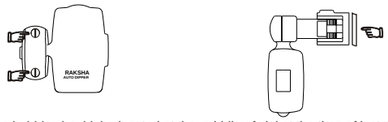
Wind shield beading, Sun control film or paint etc in front of RAKSHA should be avoided.



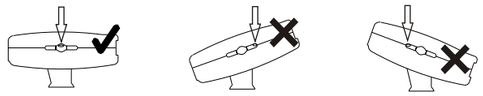
BEADING IN FRONT OF 'RAKSHA' FILM/PAINT IN FRONT OF 'RAKSHA' CLEAR VIEW FOR 'RAKSHA'

INSTALLATION OF RAKSHA

FASTENING :
Raksha 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 Raksha. 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.

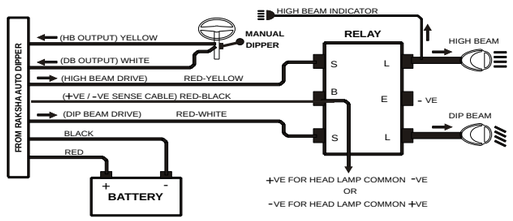


Note : Improper levelling will result in improper functioning. Don't disturb the level once adjusted.

ELECTRICAL INTEGRATION OF RAKSHA

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

RAKSHA ELECTRICAL INTEGRATION



Please note the connection from 'B' of the Head Lamp Relay.

ACTIVATION OF RAKSHA

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

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

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

AUTOMATIC OPERATION :

Once activated 'RAKSHA' 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.

OPERATIONAL MODES OF RAKSHA

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

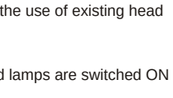
LIT ROAD MODE :

The general behaviour of raksha on road which are 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 'RAKSHA' keeps the lamps in main beam only. However the user can go to dip beam through the override if desired.

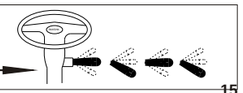
THE DIPPER SWITCH INTEGRATION WITH RAKSHA

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 'RAKSHA' 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 15) Similarly in some situations if 'RAKSHA' 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 RAKSHA

The operational control of the 'RAKSHA' 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 Raksha 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 Raksha either from main beam to dip beam or from dip beam to main beam. The reversal is with reference to the beam maintained by RAKSHA while performing in Auto mode under item (a) Above, just prior to override.

OPERATIONAL CONTROL OF RAKSHA

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 Raksha 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 Raksha will keep the head lamps in 'OFF' sate.

DISPLAY OF RAKSHA

For your convenience "RAKSHA' will display the road lighting status, the manual dipper switch position and the head lamp beam status as shown below.

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

RAKSHA MODE STATUS
Continuous'ON' : AUTO MODE
Blinking : OVERRIDE

HEAD LAMP BEAM STATUS
HIGH BEAM : 'ON'
LOW BEAM : 'OFF'

- **IF OVERLOAD IS DETECTED IN THE OUTPUT OF 'RAKSHA' : ALL LED'S WILL FLASH.**

TECHNICAL INFORMATION

The illuminance and time response characteristics of 'RAKSHA' are believed to be appropriate for Indian Roads. 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.

BASIC DETAILS :

1. Power consumption	:	1 Watt max.
2. Input Voltage	:	9 to 30 Volts DC.
3. Output Current for Relay drive	:	Max 300 mA
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.

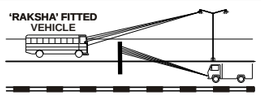
Other details can be furnished on request.

NOTE : Specifications are subject to change without prior notice.

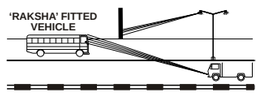
IMMUNITY OF RAKSHA

'RAKSHA' is highly immune to radiation from Road side stray lamps, road reflections and also solar radiation during late dusk and early dawn. This makes RAKSHA 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 RAKSHA is immune to vehicular lights.

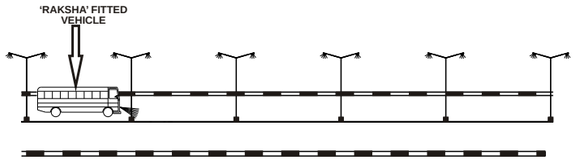


While tracking vehicular light status RAKSHA is immune to street lights.



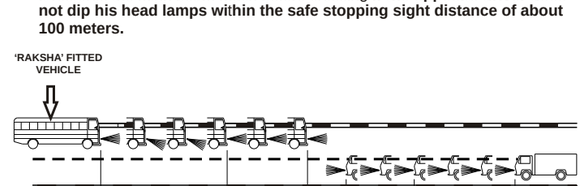
WHAT RAKSHA DOES ON LIT ROADS

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



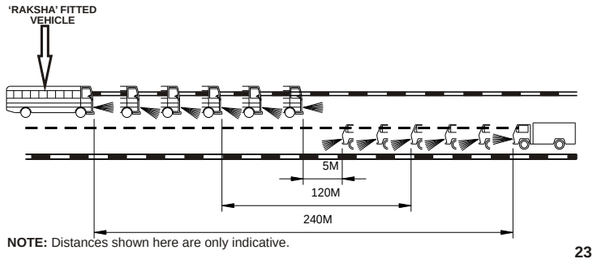
WHAT RAKSHA DOES ON DARK ROADS

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



WHAT RAKSHA 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.

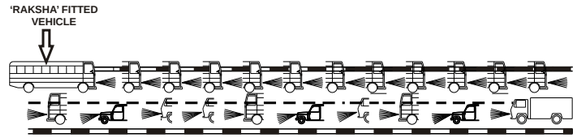
WHAT RAKSHA DOES ON DARK ROADS

- 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 100 meters.**

NOTE: Distances shown here are only indicative.

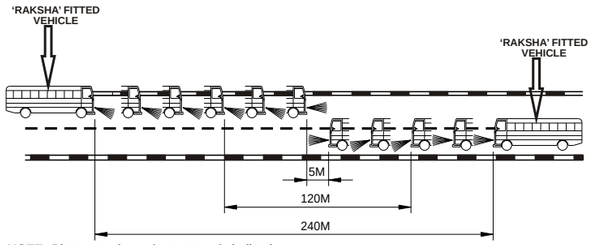
WHAT RAKSHA DOES ON DARK ROADS WITH DENSE TRAFFIC

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



WHAT RAKSHA DOES ON DARK ROADS

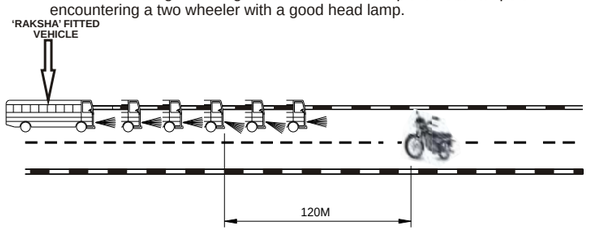
- It dips the head lamps of both vehicles if fitted to both vehicles.



NOTE: Distances shown here are only indicative.

WHAT RAKSHA DOES ON DARK ROADS ON ENCOUNTERING A TWO WHEELER

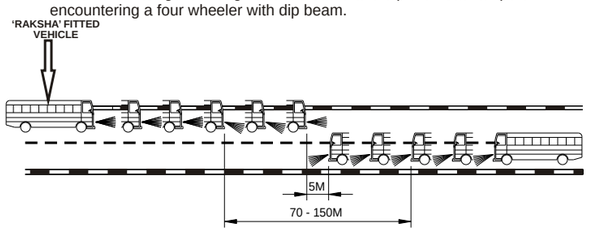
- 'Raksha' is intelligent enough to understand and dip the head lamps on encountering a two wheeler with a good head lamp.



NOTE: Distances shown here are only indicative.

WHAT RAKSHA DOES ON DARK ROADS ON ENCOUNTERING A DIPPED BEAM VEHICLE

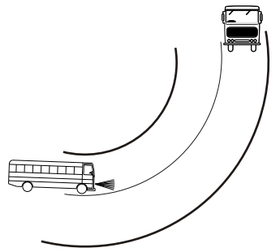
- 'Raksha' is intelligent enough to understand and dip the head lamps on encountering a four wheeler with dip beam.



NOTE: Distances shown here are only indicative.

WHAT RAKSHA DOES ON DARK ROADS WITH CURVES

- It is intelligent enough to understand the curves and respond apropriately.



MAINTENANCE OF RAKSHA

'RAKSHA' does not need any maintenance. However one should remember that

- The lens window of the dipper should be always clean.
- The dipper 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 RAKSHA :

The best results of using Raksha will be derived only if the head lamp system of a Vehicle is efficient and is in good condition. Ensure the following so that your visibility will be satisfactory.

- Use only efficient bulbs of sufficient wattage. This will ensure sufficient illuminance to enable you to have proper vision of the objects on road.
- Use only proper cables so that the line resistance will be minimum. This will prevent short circuit and will ensure the normal lumen output from bulbs.
- Always ensure that the head lamp assembly allignment is proper.

TROUBLE SHOOTING

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

1. Light Signal reaching the RAKSHA. 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 Raksha 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, RAKSHA cannot be activated.
4. If the Dipper switch contacts are not proper, RAKSHA cannot perform properly.
5. If the Electrical Connections of RAKSHA are not firm, malfunction may occur.
6. If the head lamp relay fails, the head lamps may not function or function improperly.
7. If the Head Lamp bulbs are fused or are not connected properly the same may contribute to problems.
8. If all the above are verified and should the problem not solved, you may contact the authorised service representative for assistance.

WARRANTY

RAKSHA Auto dipper 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: