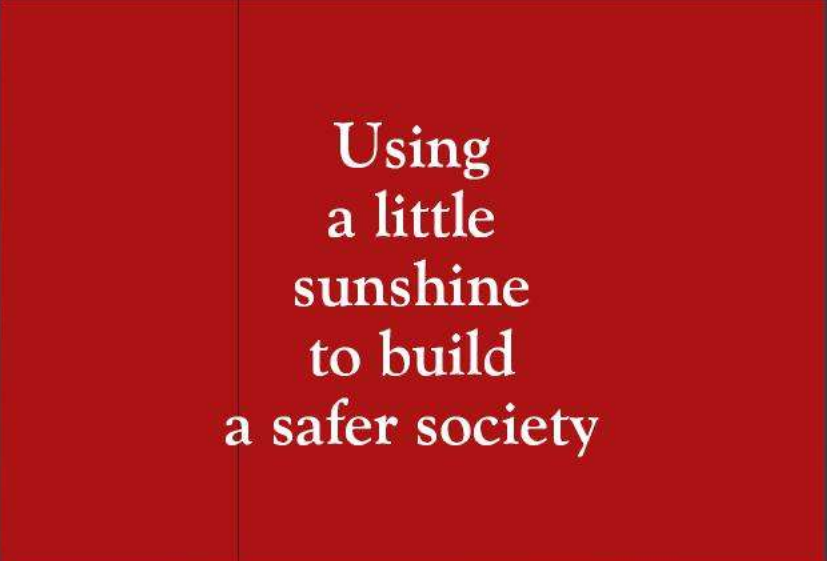


**Using a little sunshine to
guide you safely to your destination**

SURAKSHA
Solar Solutions for Roads and Highways
from Tata BP Solar





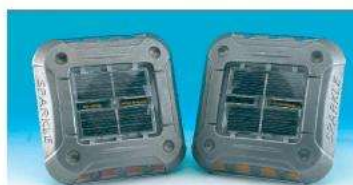
Using
a little
sunshine
to build
a safer society

On the road to safety...

Increasing road accidents, an alarming number of deaths, inadequate road safety measures... these are the concerns that have helped shape a range of Solar Road Safety Aids. Designed and developed by **Tata BP Solar** - a 100% Solar Company, these world-class products play a pivotal role in preventing road accidents.

The innovative and indigenous **Solar Road Studs**, **Solar Road Flashers** and **Solar Traffic Signaling Systems** from Tata BP Solar use the free and endless energy of the sun, to make roads safer. Showcasing Tata BP Solar's state-of-the-art technology, these Solar Road Safety Aids are safe, efficient and reliable.

A bright Sparkle for a safer drive



Sparkle Solar Road Studs, from Tata BP Solar, the first-of-their-kind road safety products in the country, have been specially designed and manufactured for Indian road conditions. Used as a central median in National/State Highways and busy city roads, **Sparkle Solar Road Studs** convert the power of the sun to direct you on the road to safety. They serve as safety guides to drivers when they need it most - at night and during bad weather conditions.

Salient Features

- Uses free energy of the sun to create safer driving conditions
- Improves road visibility for drivers at night and during foggy and rainy conditions
- Prevents fatal road accidents and serious injuries caused by center line invasion
- Strong enough to withstand the weight of a fully loaded truck
- Compact, highly efficient battery with back-up of up to 4 days
- Detachable battery design
- 6 LEDs - three on each side. Uni-directional studs with 3 LEDs also available
- Automatic dusk-to-dawn operation
- Powerful LED display with visibility up to 500 m. Ultra-bright LED in amber and red colour
- High efficiency Crystalline Silicon Solar Cells
- Robust, all-weather aluminium die cast housing with reflection strip
- Capable of withstanding temperature between -20°C and +55°C
- Flash rate of 50-65 times per minute.
- Independent units with anti-twist and anti-theft ribs
- Water resistant and weather proof design

Solar Road Flashers - The power to capture your attention

Serving as warning lights, **Solar Road Flashers** from Tata BP Solar provide a high level of safety to pedestrians at road crossings and crowded junctions. Powered by the sun, these standalone systems function solely on solar energy and can be operated from dusk to dawn or 24 hours a day as required.

Where can Solar Road Flashers be installed?

- Highway Intersections
- Near Schools, Hospitals, Temples, Offices, large Campuses, Yards, Housing Colonies, Govt. Buildings, Car Parks, etc.
- Near Road Humps, Check Points and Railway Crossings
- Restricted Areas and Construction Sites
- Tunnel Entrance, Approach to Over / Under Bridges
- Near Factory Entrances and within Factory Complexes
- Ghat Roads, Road Turns, Hair Pin Bends, Sharp Inclination Areas, etc.

Salient Features

- Standalone system fully powered by Solar Energy
- 200 mm diameter Aspect with ultra bright LED ensures good visibility (300 mm diameter Aspect optional)
- Single and double Aspect types with triple Aspect provided on request
- Automatic dusk to dawn operation or 24 hours per day
- 3 days system autonomy for no-sunshine days
- Designed for Indian operating conditions
- Pole designed to withstand heavy winds
- LED available in red and amber colours

Specifications

- High efficiency Crystalline Silicon PV Module mounted on pole for optimum exposure to sunlight
- Low maintenance Lead Acid Battery (SMF Battery optional)
- Pole-top battery mounting
- LED flash rate of 1 Hz operation with 60 flashes per minute
Straight line visibility of more than 500 m under clear weather conditions
- 3 m high M S Pole with corrosive resistant paint
- Operating temperature range of 0°C to (+) 55°C
- Installation guide provided with each unit
- Designed in line with IS:7537 - 1974 specifications



Solar Traffic Signaling Systems - The guiding light for greater safety



Cautioning drivers at road intersections and directing them safely on their way are the **Solar Road Signaling Systems** from Tata BP Solar. These systems can be operated both on solar and grid power with auto changeover

facility from solar to grid and vice-versa.

During no sunshine days or during grid power failure, these systems can operate up to 10 hours from a fully charged battery. The ultra bright LED in these systems provides good visibility even from a distance.

Features

- Ultra bright LED with visibility up to 800 meters
- Maintenance-free LED in colours of red and green
- Operates on both solar and electrical energy
- Countdown Timer Display indicating residual time for green signal
- Fully automatic operation with facility for manual operation
- Operates 14 hours with 10 hours of flashing per day
- Powder coated sheet metal for Signal Aspect
- G I Pipe with corrosion-resistant paint for long life
- Modular Signal Head with tilt and rotate feature
- Aesthetically designed for Indian operating conditions

Technical Specifications

- Uses 50% of solar and 50% of grid power with first preference to solar power
- Operates up to 10 hours from a fully charged battery in case of both solar and grid power absence
- System voltage - 24 V DC
- Network compatible for RS 232 interface
- Can be upgraded for synchronization, remote monitoring and control
- System uptime of more than 98%
- Programmable Timing with on-site modification
- Suitable Solar Array capacity and Solar Charge Controller
- Sealed, maintenance-free / lead acid battery
- Grid input : 230 V AC / 50 Hz / single phase
- Grid Charger : 24 V / 10 Amps

Solar Directional Signs

Designed especially for Indian requirements, Solar Powered Directional Signs from Tata BP Solar, are typically placed along curved roads, sharp curves, flyover / bridge railings, diversion at road constructions, roundabouts, etc. to direct roadway motorists, at an effective distance.

These Directional Signs enhance driver safety by greatly improving visibility under bad weather conditions, especially at night or in rainy or foggy conditions.

Features

- Field configurable feature for "Left" or "Right" Arrow
- Unique "Anti-theft" mechanism
- 5 Wp Solar Panel
- Solar Mounting tilt angle and south orientation for maximum power generation
- 1+2 days autonomy
- 0 - 50°C Operation up to 95% RH
- IP 55 Protection



Quality you can count on - for years!

As India's largest Solar Company, Tata BP Solar is constantly innovating to give you more value for your money. These high quality products are backed by excellent nationwide sales and service support.

Tata BP Solar is a 100% Solar Company. Which means, it focuses completely on solar and its applications. Its R&D efforts translate into better, more user-friendly solutions. A fact that has been appreciated by thousands of customers across India and the world.

Tata BP Solar is a joint venture between Tata Power Company Ltd., a pioneer in the power sector in India and BP Solar, one of the largest Solar Companies in the world.



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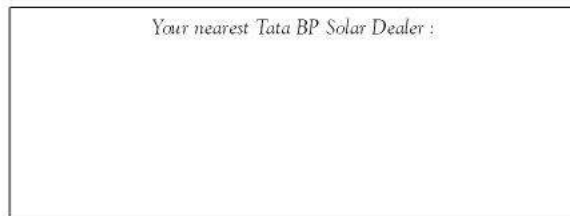
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www.tatabpsolar.com

Due to continuous developments and product improvement, the Company reserves the right to change/alter the specifications.