



Clearview
Intelligence

Active Road Studs



Improve safety and reduce accidents for all
road users with the Clearview Intelligence
range of Active Road Studs

Active Road Studs



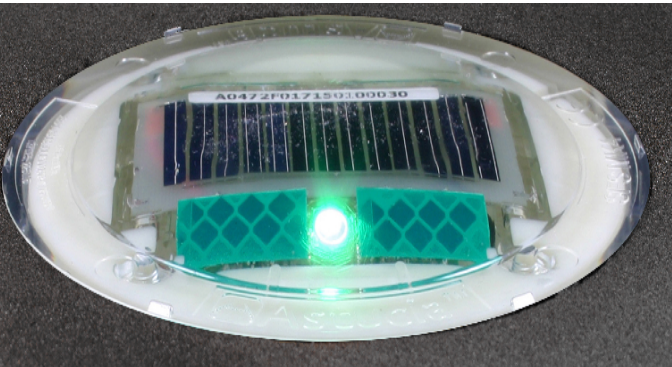
Improve safety and reduce accidents for all road users with the Clearview Intelligence range of Active Road Studs

Active road studs use built-in sensors to automatically illuminate at dusk and turn off in daylight, unlike retro reflective roads studs that require direct beams from headlights to be visible. LEDs in active studs provide enhanced visibility up to 900 meters, which is 10 times the distance offered by retro reflectors, giving drivers more time to react to changes on the road. This enhanced visibility significantly improves safety for all road users at night.

Safety and Delineation

Our road studs deliver clear and effective delineation which provides improved safety across our networks.

A study carried out by the UK's independent Transport Research Laboratory concluded that Clearview's active road studs reduce the likelihood of crossing central lines or changing lanes on highways, resulting in more consistent braking and less main beam usage that could dazzle oncoming drivers.



Improve Visibility, Improve Safety

The World Health Organisation states that over 1.3 million people lose their lives every year as a result of a road traffic accident. Poor visibility at night and awareness of hazards are a contributing factor to road accidents. Active Road Studs have been shown to reduce accidents by up to 70% at night providing enhanced delineation of the road and lanes.

Active Road Studs can significantly increase a driver's reaction time from 3.2 seconds to over 30 seconds at 100km/h (62mph)

Key Features & Benefits

- **Road Safety** proven to decrease night-time accidents by over 70%
- **Delineation** provide clear delineation of lanes, paths, and junctions
- **Visibility** 10 x better visibility than traditional retro-reflective studs up to 900m
- **Approved** by the UK's Department for Transport and compliant with the European Standard of BS EN1463
- **Improves** driver behaviour through lane discipline and consistent braking
- **Increased reaction time** allows additional reaction time for drivers to respond to changing road layouts
- **Improved and Superior visibility** even in poor weather conditions
- **Pedestrian** cycle and motorcycle friendly



Active Road Studs

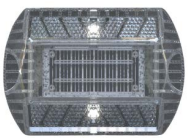
Effective delineation can deliver improved safety across our networks. From the centre or at the edges of carriageways to junctions, roundabouts, cycleways, footpaths and level crossings.

The Lite range of Active Road Studs includes both Solar and Mains powered solutions for a variety of applications.



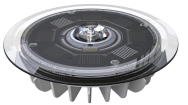
SolarLite Flush

Low profile Solar powered stud installed flush with the road surface



SolarLite Surface

Surface mounted Solar powered stud ideal for edge delineation



SolarLite Path

Solar powered – specifically designed to be deployed in footpaths and cycle routes



IRS2

Hard-wired stud for all day running and control by connected traffic technology

SolarLite Applications

- Delineation** - Improved road and pathway visibility, highlight hazards, junctions and intersections
- Lighting** - Sustainable alternative to street lighting on unlit roads or pathways
- Cost Reduction** - Deploy as an alternative to traditional road studs to achieve lower lifetime costs

IRS2 Applications

- Dynamic Lane Marking** - Activate studs to highlight lanes on demand with traffic signals or other detection methods
- Delineation** - Enhance delineation permanently in tunnels or operate the bi-directional studs in contra-flow mode to highlight changes in flow
- Hazard Warning** - Provide a visible warning of conflict zones for pedestrian and rail crossings

SolarLite

SolarLite - Smart, Safe and Sustainable Active Road Studs

Solar Powered



Our SolarLite Active Road Studs combine the use of retro-reflective strips with high brightness LEDs (Light Emitting Diodes) to provide visibility up to ten times greater than that of traditional retro-reflective studs.

The SolarLite range studs are powered by solar energy captured from natural sunlight through the in-built solar panel and stored in the stud's internal battery. A few hours of daylight will provide enough battery power to last days, more than enough to ensure the system operates all year round whatever the weather and wherever the location in the world.

This smart, safe and sustainable solution provides delineation and guidance to vehicle drivers, cyclists and pedestrians, while helping to reduce environmental impact, whole-life costs and ultimately, saving lives.

SolarLites are deployed for enhanced delineation on:

- Road edges, lanes, junctions and intersections
- Cycle and Pedestrian paths
- Railway and Pedestrian crossings
- Ports and Airports for cargo guidance

SolarLite Flush

Studs are cored into the road/path/cycle way and sit less than 4mm from the surface of the road, pathway or cycleway. This low profile makes them unobtrusive to motorists, motorcyclists, cyclists and pedestrians. Their design enables them to be used in heavily trafficked sections of the road such as central lanes.

SolarLite Surface

Studs are used in both on and off highway applications to heighten awareness of potential hazards, through the active edge delineation of roads, cycle paths, canal towpaths and level crossings. With a range of different colour LED options available to indicate different hazard types or areas, the studs provide a flexible, low cost, sustainable and easy to install option for enhancing safety at critical locations.

SolarLite Path

SolarLite-Path (P) offers a full 360 degree in-ground 'LED' light using renewable solar energy to provide delineation specific to active travel applications. The stud is ideal as a route guidance solution for use in areas where no mains power or street lighting exists to support guidance for pedestrians and cyclists in the hours of darkness. SolarLite Path has been developed specifically to withstand the level of force that a tarmac pathway is exposed to along with a textured top surface design to maximise pedestrian grip.

Performance

The optical output of the SolarLite Path has been designed to focus light up to 25m away from each stud at a relevant height and angle to give the best guidance to pedestrians and cyclists in the hours of darknes

SolarLite

All year-round operation

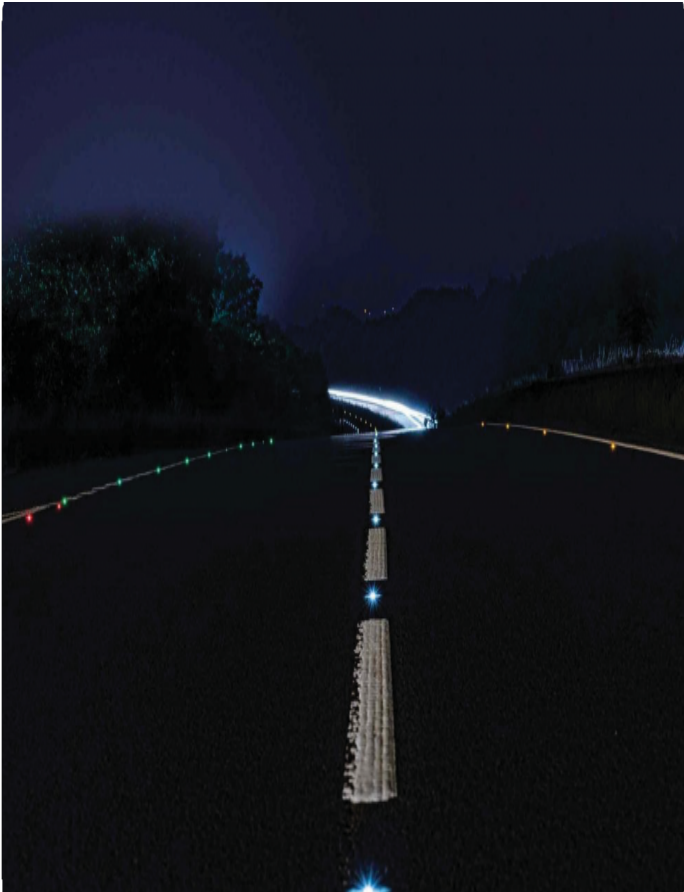
We use patented power management technology, to confidently assure reliable, robust and maintenance free all year-round operation. Just three hours of bright daylight will provide a full charge for 10 nights operation.

Lifespan

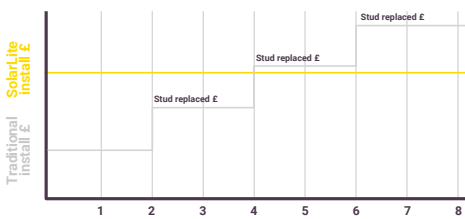
The operating life of SolarLite studs is greater than the average estimated road surface life expectancy, and the overall costs are substantially lower than that of traditional road studs, with a significant reduction in maintenance costs. Some customers have reported that their studs have lasted over a decade and are still effective.

Sustainability - a sustainable technology solution

Local authorities, transport authorities and private sector organisations are constantly looking for ways to reduce costs and lower their environmental impact. SolarLite studs are a sustainable solution that help reduce energy costs and are often combined with Active Travel schemes to provide clear visibility to cyclists and pedestrians on paths as they are unobtrusive and bicycle friendly. The studs are also popular in areas where there is a need to reduce light pollution often in rural areas.



SolarLite lifetime costs vs traditional studs



All SolarLite studs have UK type approval from the Department for Transport and comply with BS EN 1463.

SolarLite Features & Benefits

- **Sustainable solution** harnesses free solar energy with minimal installation requirements while still performing effectively
- **Accident prevention** proven to decrease night-time accidents by over 70%
- **Visibility** of road layout ahead is superior to retro-reflective studs
- **Environmentally Friendly** as alternative light source to street lighting where not feasible to install, not cost effective or environmentally not possible
- **SolarLite Flush** positioned less than 4mm above the surface - unobtrusive to motorists, motorcyclists, cyclists and pedestrians
- **Robust** enough to withstand traffic passing over them with no adverse effects
- **Encourages safer driving behaviour** reducing erratic driving behaviour and easing braking along winding roads
- **Lifespan** 4 x longer than traditional studs
- **Reliability** performs all year round, day and at night
- **Reduced costs** of ongoing maintenance compared to traditional road studs
- **Colour** full range incl: amber, red, white or green

IRS2 Hardwired Intelligent Road Studs

Flexible hazard warning road stud solutions

Hazard Warning



Clearview Intelligence's Hardwired Intelligent Road Stud (IRS) Systems have been specifically developed to reduce the number of road accidents and increase safety for all road users.

The innovative and flexible design of Clearview's hard-wired studs provides drivers with advance awareness of the road ahead, giving them more time to react accordingly.

Suitable for a wide range of applications from dynamic lane marking to pedestrian crossing systems, the revolutionary intelligent road studs are effective in all lighting conditions, making them a clear choice when it comes to improving safety on our roads.

Cost effective

Easy to install, the intelligent road studs are embedded in the road and are unobtrusive to motorists, motorcyclists, cyclists and pedestrians alike. With low maintenance and low power consumption they are leading the way for traffic guidance and hazard warning.

Clearview's hardwired studs are increasing safety around the world, installed in locations including Ireland, France, Holland, Australia and California.

IRS2 Features & Benefits

- **Low maintenance and running costs** with low power consumption
- **Easy to install** embedded in the road, unobtrusive to motorists, motorcyclists, cyclists and pedestrians
- **Increased road capacity and reduction in congestion** when used with dynamic road marking schemes
- **Proven to help reduce lane 'drift'** on spiral roundabouts
- **Highly visible** in poor weather
- **Proven increase in safety** at pedestrian, railway and tram crossings
- **Up to 1000m visibility** modular design / upgradeable Programmable functionality Profile less than 4mm
- **Integration** with and activation by 3rd party traffic control devices
- **Switchable** uni and bi-directional capability

IRS2 Hardwired Intelligent Road Studs

These revolutionary intelligent road studs are suitable for a wide range of applications:-

Dynamic Lane Marking Systems

- Lane delineation and control
- Roundabout and lane control
- Tunnel delineation
- Tidal /contra flow/ lane reversal (incl: one way systems)
- Congestion relief / reduction
- Optimisation of road capacity
- Toll/Terminal plazas - incl: bridges, tunnels, ports and airports

Crossing Systems

- Pedestrian crossing systems
- Level/railway crossing systems

Incident and Queue detection

Technology to identify and warn of incidents in the flow of traffic. Detection and warning of queues or slow moving traffic using a combination of Clearview Intelligence technology.

Lighting the way

When used in conjunction with road capacity and expansion schemes, dynamic lane marking using Clearview hardwired studs can increase highway capacity and reduce congestion. Clearview's high brightness hard-wired road studs provide enhanced delineation during periods of poor visibility whether during the day or night from activation by an external fog sensor. Our intelligent road studs are effective in all lighting conditions helping improve safety on the roads.

Vehicle area cordon

Providing high visibility delineation of immediate hazards to passing pedestrian and road traffic, helping to increase the safety of those within proximity of a potentially hazardous situation.

Hazard Warning

With the increase in active travel the need to protect vulnerable road users has become a priority for authorities. This has led to more innovative use cases for the IRS2 including Cyclist Awareness and Protection Schemes

Illuminating Intelligent Road Studs (IRS2) were deployed at the intersecting junctions providing guidance to the cyclist and awareness to the driver. The detection of cyclists approaching the junction triggers the IRS2 highlighting to both cyclist and driver potential collision.



Dynamic Lane Delineation

Installation of IRS2 Hardwired Road Studs linked to traffic signals provides enhanced lane delineation to aid traffic flow and reduce the number of incidents that occur due to lane transgressions. Clearview have installed this type of solution in various situations where inadvertent lane transgression and collision rates are high with documented evidence of the positive effects that IRS2 delivers in reducing lane transgression.



For more of our solutions please visit our website www.clearview-intelligence.com/about/case-studies/



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