SOLAR ROAD STUDS

D&C Solar Road Studs deliver 10x greater visibility of the layout of the road ahead, so up to 900m. Conventional retro-reflective surface mounted studs are a false economy. Relying solely on the effectiveness of the vehicle's headlight beam and the ability of the product to reflect some of that light back in the line of sight of the driver means at best they normally give only around 90m visibility.

D&C Solar Road Studs increase the available time to scope out the road ahead, enabling you to adjust your behaviour to the driving conditions ahead. Even in poor weather conditions, where other road markings become less visible, D&C Solar Road Studs continue to shine through, guiding you safely.

Just 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.

Features

- Surface mounted D&C Solar Road Studs poviding up to 900m of visibility from high intensity LEDs
- Totally sustainable harnessing free solar energy from built-in solar panel
- Superior solar energy harvesting & storage electronics designed to maintain light outputs throughout a full annual cycle
- Use where street lighting is either unavailable, not cost effective or environmentally not possible
- Ideal for light vehicle roads and domestic applications
- Full range of colour options for all delineation use including amber, red, white or green

Benefits

- Superior distance visibility of road layout ahead compared to retro-reflective studs
- Reliable all night, all year round performance
- Lower lifetime costs than traditional road markings
- Long lasting, carefree operation
- Maintains superior visibility even in poor weather conditions and on wet roads
- Decreases night time accidents by over 70%
- Enhances driving experience, making drivers feel safer and more able to travel at night
- Highly impactful and politically visible contribution towards reducing road safety fears
- Effective additional driver safety tool when used in conjunction with street light reduction schemes

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SPECIFICATIONS

Model	DCIRRMB1
Body Material	Polycrystalline
Power Supply	Solar Panel Monocrystalline Solar Panel (5V/0.4W)
Power Storage	Lithium Battery Li-Ion 3.2V 500mAh Battery
Compressive Strength	15 Tonnes Static Weight
Size	Unit Diameter: 117 mm +/- 5mm Unit Height: 23 mm
Water Proof	IP68
Visual Distance	900 m
Packaging Info:	Packaging: 60 Pieces per carton Carton Size: 70cm x 30cm x 20cm.

LED's	10 x Ultra Bright 5mm
LED Colours	Red, Yellow, Green, Blue and White
Lighting Mode	Blinking or Constant Flashing Frequency 2 Hz
Full Charge	8 Hours
Working Hours	120 Hours
Lifespan	3 Years +
Size	Diameter: 117 mm Height: 23 mm
Warranty	1 Year
Weight	20 Kg per carton 60 pieces

Installation Instructions

Always read these instructions even if you are familiar with the installation process for D&C Solar Road Safety Studs.

Under no circumstances should the stud be dismantled. Failure to comply with this or these installation instructions will invalidate the warranty. The positioning and colours of the installed studs should conform with the existing laws and regulations, where applicable, of the country or state of installation.

Correct installation is essential if the road markers are to achieve good adhesion to the road surface. D&C Solar Road Safety Studs must only be installed in hard-aggregate surfaces such as bitumen or concrete with an approved installation compound as listed in this document. It is the responsibility of the installer to ensure that road construction and weather conditions are suitable for the installation of studs.

To maximise the effectiveness of the enhanced delineation provided by D&C Solar Road Safety Studs, studs should commence at least 100m prior to the start and continue 100m from end of the bend in addition to the bend itself. When multiple bends are in close proximity to each other, it is also recommended that D&C studs are installed between the bends to ensure continuity of the visual effect.

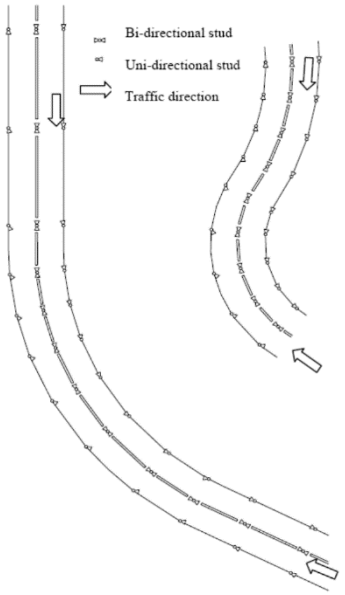
- Do not attempt installation work if the road surface is wet, damp or when the road/surface temperature is below 0ºC.
- Ensure that the correct Personal Protection Equipment is worn at all times.
- Always refer to the handling and usage instructions provided with the fixing materials.

Alignment

When locating the stud for installation, ensure that the reflective face of the stud (3 Leds) is orientated correctly facing the traffic. It is recommended that on curves, bi-directional studs in the centre of the road be positioned such that the light output is seen clearly and as early as possible by motorists travelling in either direction.

On tight radii bends it is good practice to align every other bidirectional stud to be optimum for one direction of travel then the other. On such tight radii bends the use of red unidirectional nearside studs is also highly recommended.

Refer to the diagram on the right for examples of typical layouts showing the direction of light output together with the direction of traffic.



Installation Step by Step Instructions

Step 1

Using chalk or an environmentally friendly aerosol spray, accurately mark on the road surface, the correct positions to locate the Surface studs. These studs must only be installed on the surface of a hard-aggregate surface such as tarmac or concrete.

Step 2

At the site of each stud installation, check the road surface. If the surface has an enormously deep texture depth and is very rough, grind the surface flat to a diameter of 200mm (± 5mm).

Step 3

Clean the road surface of loose debris at the points where the studs are to be placed using either compressed air or vacuum removal. Ensure that the correct Personal Protection Equipment (PPE) is worn and that blown debris is not directe

Step 4

Ensure all surfaces are clean, dry, and free from dust and debris prior to installation, if any surface shows signs of moisture; the moisture must be removed either using a compressed air lance or a propane gas torch. Ensure that the correct Personal Protection Equipment is worn and that any blown debris is not directed at persons or vehicless.

Step 5

Caution should be used when using the gas torch so as not to over heat and damage the surface. As overheating the bitumen will allow the polymer/plastic to burn off, causing the road surface to break up over a short period of time. This in turn could allow the stud to become dislodged from the road. Mix an appropriate amount of fixative resin. An appropriate grade of two pack bitumen extended epoxy resin should be used, see approved resins note below:

Approved installation compound:

COOLBOND® EP-313 (referred to as resin). Always refer to the handling and usage instructions provided with the fixative resin.

Step 6

Pour a small pool of the fixing material to a diameter of 160mm (±5mm) to the position on the road where the stud is to be placed using a hand jug of no more than 600 ml capacity. This ensures accuracy of the poured fixing material.

Place a very small amount of the fixative material onto the underside of the stud filling the voids in the moulding and scrape off any excess

Step 7

Immediately place the stud centred onto the pool of fixing material. The stud should be positioned with the face of studs (3 x LED's side) facing oncoming traffic. If the fixing material gets onto the upper surfaces of the stud wipe it off immediately

Step 8

Make any fine adjustments necessary to the alignment. There is only a very short time (approximately one minute), in which this adjustment can be made prior to the fixing material curing.

Clean site after the installation and remove all debris from the carriageway. Installation complete

Examples of where these solar studs can be used safely:

Fig 1: Used on roads for light vehicles

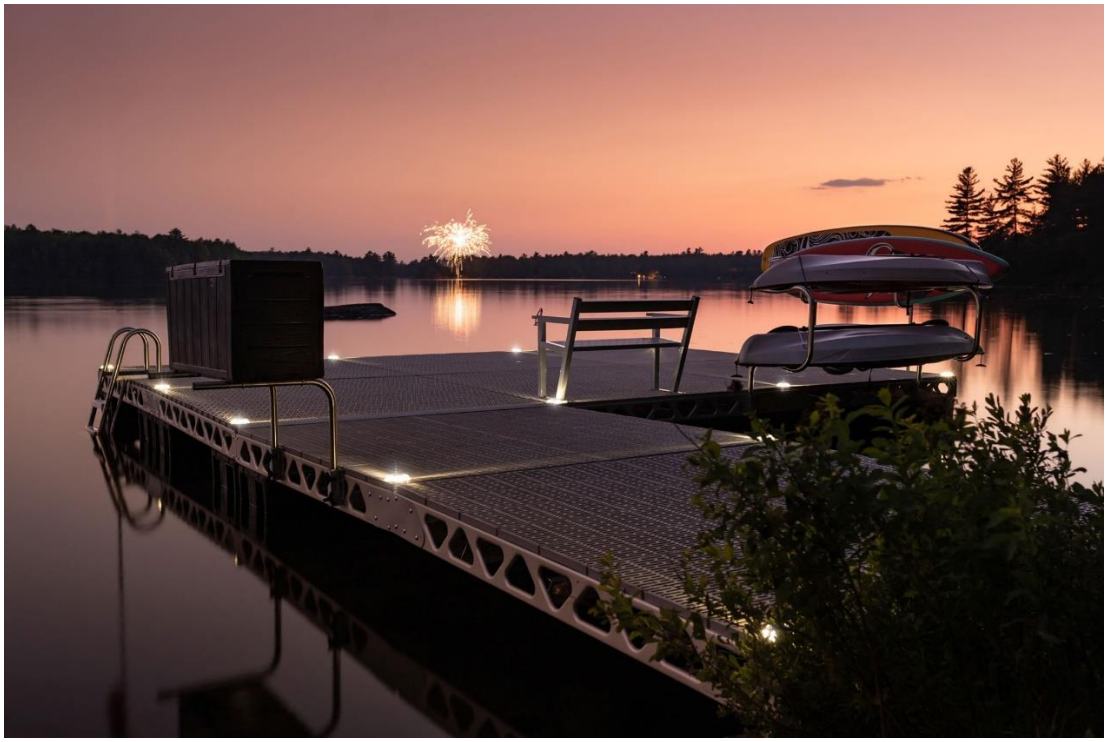


Fig 2: Used on a private jetty