

SolaRight™ Internally Illuminated Recessed Pavement Marker (IIRPM)

Installation Instructions **Model: YH-DD1**



Form AF-004
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General Product Information

Wireless IIRPM (Internally Illuminated Recessed Pavement Marker) YH-DD1

SolaRight Wireless Lighting's YH-DD1 IIRPM is a self-contained lighting device powered by solar energy collected through solar cells and stored in a Pseudocapacitor. The stored energy is released through LED's during darkness. The lights turn on and off automatically based on light conditions.

1. Charge Time

A full charge requires a minimum of 3 hours of direct sunlight or 6-8 hours on an overcast day. The lights will illuminate (discharge) up to 16 hours when the unit is fully charged.

2. Site Selection

While SolaRight products represent a huge advantage in solar technology, reliability and performance, the products still require consideration of sunshine availability and direct UV exposure for a successful installation. In the case of questionable sun exposure, it is required to check the operation of the IIRPM before permanent installation by temporarily placing it in the area in question and observing the performance.

Please contact SolaRight for "Loaner Lights" that you may place in the intended locations before purchasing and installing the lights if there is doubt about available solar exposure.

If the light performs as intended, proceed with the installation process. If not, determine if there is a more suitable location allowing additional access to the sky.

Pre Installation

3. Leveling Brackets

Leveling brackets will be provided with the product when you order from SolaRight Lighting. The brackets are re-usable, so you may not need an installation kit for every light. Your SolaRight representative will help you determine the number of kits needed for your project. These are provided at no additional charge.



Leveling Kit



Contents

Pre-install the leveling brackets before the job to save valuable time on-site. In each kit there are 2 leveling brackets, 2 screws and 2 nylon washers.

SNOW PLOW AREAS

For installation in roadways where snowplowing activities are common, you will utilize all components in the kits.

To install leveling brackets, place a screw through the hole in the clear leveling bracket, then place a nylon washer on the screw and fasten to the pre-tapped holes on each side of the YHDD1. The clear leveling brackets also aid in alignment of the light.



Nylon washer fits
between the light and
the clear bracket to
recess the light



NON-SNOWPLOWED ROADWAYS AND PATHS

Follow the same process as above for snowplow locations except DISCARD the 3mm Nylon washer.

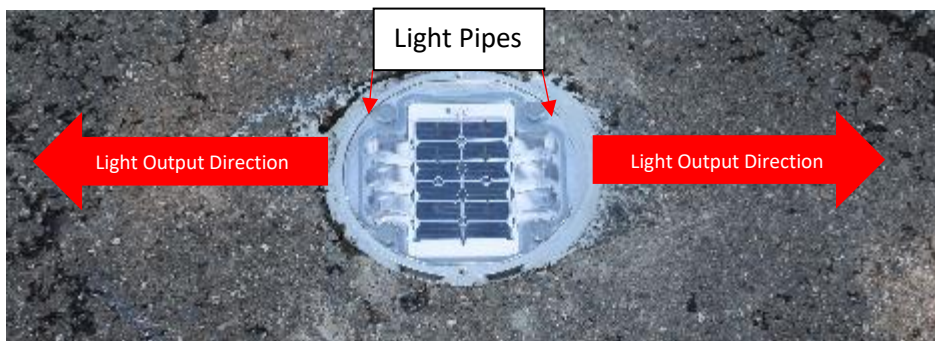
4. Core Depth

Set depth gauge on core drill or otherwise mark desired depth of core on the outside of the drill bit for reference to ensure proper core depth. Marker height is 1.97". Core depth should be between 2 1/8" to 2 1/4".

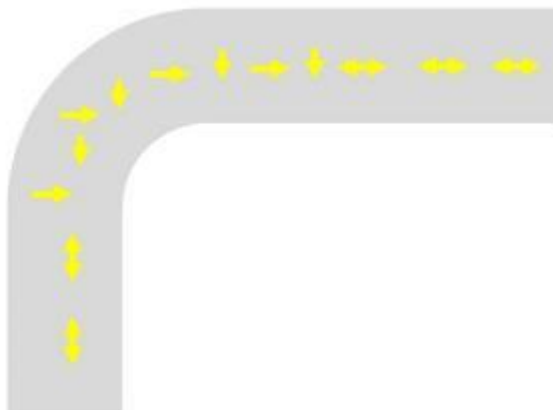


5. Alignment

On straight roadways and standard curves, plan your installation by aligning the "light pipes" and light output direction (see photo) parallel to the adjacent roadway striping.



On sharp curves of approx. 90 degrees or more, as the curve begins, align lights in alternating directions relative to oncoming traffic from both directions as shown below.



6. Mark drilling locations on pavement

Mark centers of desired core locations using spray paint, permanent marker or chalk.

7. Mark light output direction on pavement

Using alignment guidance from step 5, draw arrows on the pavement near but not on the intended light location to indicate light output direction.

Installation Procedures

IMPORTANT NOTE: Ensure that the thin clear plastic protective cover on the lens, installed at the factory, is in place. Do not peel clear protective cover off the YHDD1 unit until it is fully installed into its final location. If there is no clear plastic protective cover, simply place masking tape over the light emitting portion(s) of the light as well as the solar collectors during installation. During installation, adhesive can come into contact with the lighting area of the lens which will cause decreased light output.



8. Drill Core

Align core drill bit above marks created in step #5. Drill hole into the surface material with a diameter of 6" and a depth range of 2 1/8" to 2 1/4".



9. Clear Debris

In some instances, the core will come out easily after drilling. If necessary, jackhammer the remaining core and debris. Ensure minimum depth of 2 1/8" to allow sufficient space for adhesive beneath the light.



10. Prepare Core

Prepare the hole so that it is free of debris, dust and moisture using vacuum or compressed air. (Follow adhesive manufacture recommendations for procedures). Be careful to check and remove loose pieces of the core that may cause instability of the adhesive bond.

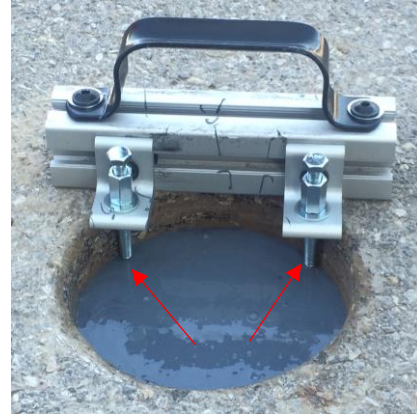


11. Adhesive

Fill the 6" core hole with adhesive to a maximum depth of 35mm below the top edge of the surrounding pavement. **Use of SolaRight Lighting's optional Depth Guide is highly recommended** and will significantly speed installation and help ensure longevity.



Place the Depth Guide in the core as a point of reference for proper adhesive fill Level.
Proper depth of gauge is 35mm.



Fill core **ONLY TO** the bottom of the depth gauge extensions. Remove any excess adhesive before placing light to avoid messy overspill.

Using the gauge, it is very important to keep the adhesive fill level at or BELOW the tips of the depth gauge. A small overage can create overfill and a messy situation. When the gauge is not available, mark a **fill line on the inside edge of the hole at 35mm below the pavement level.**



12. Marker Install

Place the Roadway Marker into the hole with pre-installed leveling brackets (Sec 3) and ensure that the adhesive rises to adequately fill the voids around the marker and align the light.

As the adhesive cures, ensure proper marker depth by visually verifying and applying slight downward pressure on the light. Light should be a maximum of 3mm below the surrounding pavement and at least 1mm below grade (use a straight edge to confirm). Ensure that the light is centered within the core and align the light pipes of the YHDD1 with markings made on the pavement as discussed in the Alignment (section 5) of this document.



Note: Directional
mark from step 7

13. Clear Over Filled Adhesive

Wipe away excess adhesive from the light's top surface and allow adhesive to cure until the light is secure. Follow adhesive manufacturer's recommendations for curing times.

14. Remove Brackets

Once the light is firmly in place, remove levelling brackets and hardware as well as the clear plastic protective cover (or tape) from top of unit.

Optional: Save mounting hardware (2 leveling brackets, 2 screws and 2 nylon washers) for use when installing additional lights.

15. Grinding-(**Recessed/snowplow installation only**)

Once mounting brackets are removed, the final step in the installation is ensuring that the light can discharge light optimally in the direction of travel.

First, mark the light discharge direction with a permanent marker on the pavement. Note that the light will discharge 20 degrees from the outer edge of the light pipes.



Next, using a handheld grinder, grind down the pavement in the marked area 3mm or to the point where the light and ground pavement are level.



16. Installation Complete



Additional Information

17. Temperature Tolerance

The YH-DD1 is resistant to varying weather conditions and operates within a temperature range from -40°F to 158°F. If installed in an area that experiences temperatures outside of this range, it may adversely affect the life of the product.

18. Chemical Resistance

The YH-DD1 is designed to withstand normal wear and tear in a roadway application. The product will withstand water and salt, however, some chemicals such as solvents and acids can damage the unit housing (aluminum) and the lens (polycarbonate)

19. Adhesive Options

For highway, roadway and heavy vehicular traffic situations, 2 part epoxy is recommended for adhering the YHDD1 into the core. Refer to approved materials lists for your installation location's governing body. For lower impact locations such as walking trails and boat ramps, concrete repair products such as Rockite™ or equivalent have been used successfully.

20. Maintenance Considerations

When restriping roadways special consideration MAY need to be given to areas where the YHDD1 is installed.

When lights are installed away from roadway striping and there is no risk of overspray on the lights, roadways may be re-striped as usual.

When the YHDD1 is installed into or near a roadway stripe or where overspray is possible, extra care should be taken to avoid covering the lights with paint or epoxy.

The YHDD1 should be masked to protect the lighting and solar collection surfaces before re-striping. As additional precaution, manual start/stop of the flow of paint and epoxy while above the YHDD1 is also recommended.

21. Tools and materials needed

1. Core drill & 6" Core drill bit
 - a. Concrete-Suggest diamond tip
 - b. Asphalt-Suggest carbide tip
2. Pavement Marking Device-Paint, chalk, pen
3. Jack hammer-30 # or smaller or hammer drill with chisel
4. Screw Gun-Philips Head
5. 5 Gallon Buckets (collect mounting hardware after use)
6. Tape Measure
7. Shop Vac
8. Handheld Grinder
9. Water source
10. Adhesive (see Sec18 for selection guidance)
11. Optional SolaRight Depth Gauge

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