// In short

- Ideal for powering wireless indoor low-power applications, such as IoT devices, sensors and small electronics
- Cut total cost of ownership by half or more and significantly reduce the amount of waste batteries (by eliminating battery replacements)
- Industry leading performance under indoor light conditions, e.g. home, office, supermarket, etc.
- Flexible, compact and lightweight design with 0.2 mm thickness for easy integration
- Fully customizable\(^1\) and available in 6 standard versions for optimal usage of available product area
- Radio-transparent, making it possible to use more product area for the module
- Based on organic materials. Made in Sweden

// Our modules\(^2\)

Epishine’s Organic Indoor Light Energy Harvesting Modules (LEHs) are the result of 30+ years experience of research in organic electronics and photovoltaics. Epishine LEHs are flexible and can be used alone or in conjunction with capacitors to replace batteries or prolong their lifetime in low-power applications.

Operating Environment
Intended for indoor use
Temperature: -20°C to 40°C
Humidity: 0 to 85%RH

Power Density\(^3\) of Active Area
18±2µW/cm\(^2\) (at 500lux)
Active Area 6 cells = 88% of module area
Active Area 8 cells = 84% of module area

Smallest Bending Radius
1cm (along longer side)

Encapsulation Barrier
Protects the LEH module from oxygen and moisture

Electrical Contacting
Low resistance crimp contacts with soldering tabs

Low Light 50 lux
Overhead Light 200 lux
Office 500 lux
Supermarket 1000 lux

\(^1\) We can provide layouts with cut-outs and holes
\(^2\) We constantly try to improve our products (and ourselves) and hence all technical data is subject to change without notice
\(^3\) Typical values measured at 500 lux warm white LED on white background at 22±2°C and a relative humidity of 45±2%
LEH3 - Product brief

/ Key characteristics & general outputs

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Open Circuit Voltage(^{1,2}) (V)</th>
<th>Short Circuit Current(^{1,2}) (µA)</th>
<th>Output Power(^{1,2}) (µW)</th>
<th>Cells</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEH3_50x50_6_10</td>
<td>3.8</td>
<td>147</td>
<td>418</td>
<td>6</td>
<td>50</td>
<td>50</td>
<td>71.5</td>
<td>60</td>
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<td>LEH3_50x50_8_10</td>
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<td>105</td>
<td>375</td>
<td>8</td>
<td>50</td>
<td>50</td>
<td>71.5</td>
<td>60</td>
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<td>250</td>
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<tr>
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<td>221</td>
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<tr>
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<td>167</td>
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<td>8</td>
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</tr>
</tbody>
</table>

1. We constantly try to improve our products (and ourselves) and hence all technical data is subject to change without notice
2. Typical values measured at 500 lux warm white LED on white background at 22±2°C and a relative humidity of 45±2%

Open Circuit Voltage Voc

Short Circuit Current Isc

Maximum Output Power P\(_{\text{max}}\)

Current-Voltage Characteristics

Measurement Conditions:
- Temperature: 22°C
- Humidity: 40%RH
- Light Source: warm white LED

Generation

Light Energy Harvesting

Module Area: Width(A)xLength(B)
- 50x50mm: Active Area 6 cells = 88% of module area
- 50x30mm: Active Area 8 cells = 84% of module area
- 50x20mm: Active Area 6 cells = 88% of module area

Type Specifier
- 00: electrode arms without contacts
- 10: electrode arms with crimp contacts
- XX: custom

Active Area 6 cells = 88% of module area
Active Area 8 cells = 84% of module area

LEH3 - Product brief
LEH3 - Product brief

/ Low illumination Output

The electrical output of our LEH3 series modules is maintained at a high level also under low light conditions.

<table>
<thead>
<tr>
<th>Power² (µW)</th>
<th>LEH3_50x50_6_10</th>
<th>LEH3_50x30_6_10</th>
<th>LEH3_50x20_6_10</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 Lux</td>
<td>35</td>
<td>21</td>
<td>14</td>
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<tr>
<td>100 Lux</td>
<td>75</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>200 Lux</td>
<td>155</td>
<td>94</td>
<td>62</td>
</tr>
</tbody>
</table>

¹ Typical values measured at 500 lux warm white LED on white background at 22±2°C and a relative humidity of 45±2%

/ Temperature Dependence

The electrical output characteristics of our LEH3 series modules show a slight temperature dependence within the specified operating environment, with excellent low-temperature behaviour. Note that humidity does not affect the output characteristics within the standard operating conditions. All mechanical properties remain the same throughout a wide range of conditions.

/ Light Angle Dependence

The electrical output characteristics of our LEH3 series modules have a comparably low angular dependence. The angular dependence is a function of light refraction and reflection at the surface and may be further improved by e.g. surface modification. Please contact us for more information.