

# Epishine



*Epishine indoor solar cells*

# Product Catalogue



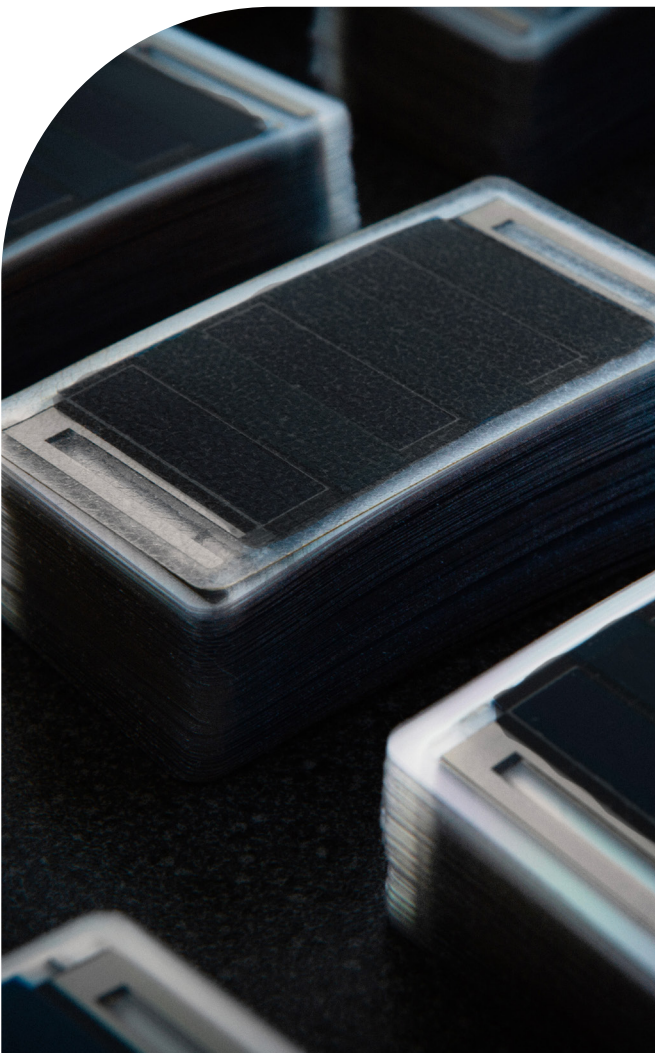


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Each product in our portfolio is a testament to our commitment to innovation and sustainability. Developed through extensive research and refined through rigorous testing, our products stand as benchmarks in the field of light energy harvesting. We invite you to explore our range of products, each designed to offer efficient and environmentally friendly solutions to everyday energy needs.



## About Epishine

Epishine is a Swedish energy impact company, reimagining the capture of light with market-leading printed organic solar cells.

Our technology captures indoor light to make electronics self-powered, making cables, disposable batteries, and unnecessary maintenance a thing of the past.

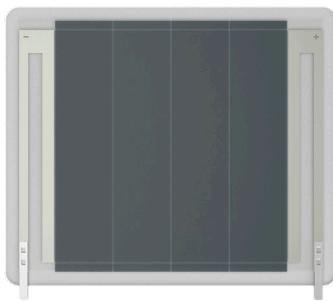
For more information visit [epishine.com](https://epishine.com)

*Our products*

## Epishine Indoor Solar Cells

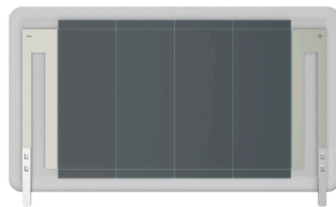
Epishine indoor solar cells are available in a selection of standard sizes suitable for a variety of applications. Available for purchase via [epishine.com](http://epishine.com).

If our standard module sizes do not fit your requirements, we offer to customise shape and size. Please contact [sales@epishine.com](mailto:sales@epishine.com).



LEH3\_50x50\_4\_10

**Activa area:** 50 x 50 mm  
**Footprint area:** 71.5 x 60 mm  
**Voltage:** 2.4 V  
**MPP @500 Lux:** 450  $\mu$ W



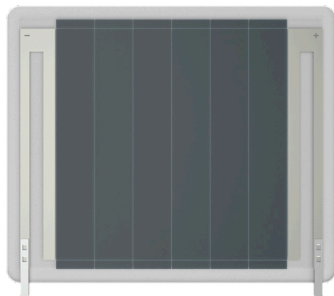
LEH3\_50x30\_4\_10

**Activa area:** 50 x 30 mm  
**Footprint area:** 71.5 x 40 mm  
**Voltage:** 2.4 V  
**MPP @500 Lux:** 270  $\mu$ W



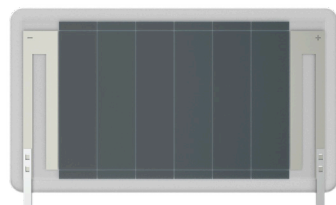
LEH3\_50x20\_4\_10

**Activa area:** 50 x 20 mm  
**Footprint area:** 71.5 x 30 mm  
**Voltage:** 2.4 V  
**MPP @500 Lux:** 180  $\mu$ W



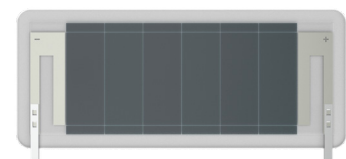
LEH3\_50x50\_6\_10

**Activa area:** 50 x 50 mm  
**Footprint area:** 71.5 x 60 mm  
**Voltage:** 3.6 V  
**MPP @500 Lux:** 450  $\mu$ W



LEH3\_50x30\_6\_10

**Activa area:** 50 x 30 mm  
**Footprint area:** 71.5 x 40 mm  
**Voltage:** 3.6 V  
**MPP @500 Lux:** 270  $\mu$ W



LEH3\_50x20\_6\_10

**Activa area:** 50 x 20 mm  
**Footprint area:** 71.5 x 30 mm  
**Voltage:** 3.6 V  
**MPP @500 Lux:** 180  $\mu$ W



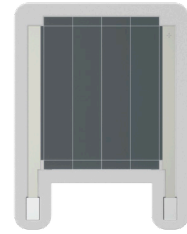
LEH3\_68x74\_6\_10

**Activa area:** 68 x 74 mm  
**Footprint area:** 89.28 x 84 mm  
**Voltage:** 3.6 V  
**MPP @500 Lux:** 905  $\mu$ W



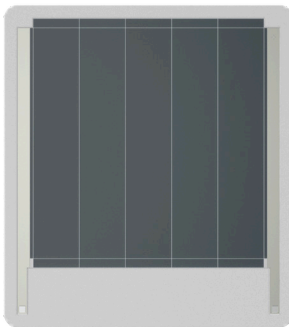
OC15\_20x50\_1\_100

**Activa area:** 20 x 50 mm  
**Footprint area:** 33.2 x 70 mm  
**Voltage:** 0.6 V  
**MPP @500 Lux:** 180  $\mu$ W



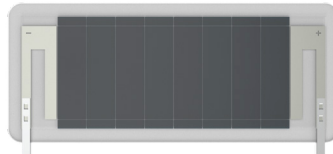
MC15\_25x29\_4\_200

**Activa area:** 25 x 29 mm  
**Footprint area:** 37.8 x 49 mm  
**Voltage:** 2.4 V  
**MPP @500 Lux:** 130  $\mu$ W



MC15-50x50-5-200

**Activa area:** 50 x 50 mm  
**Footprint area:** 62.8 x 70 mm  
**Voltage:** 3.0 V  
**MPP @500 Lux:** 270  $\mu$ W



LEH3\_50x20\_8\_10

**Activa area:** 50 x 20 mm  
**Footprint area:** 71.5 x 30 mm  
**Voltage:** 4.8 V  
**MPP @500 Lux:** 180  $\mu$ W

*Concealing the solar cell*

## Pattern Covers & Diffusors

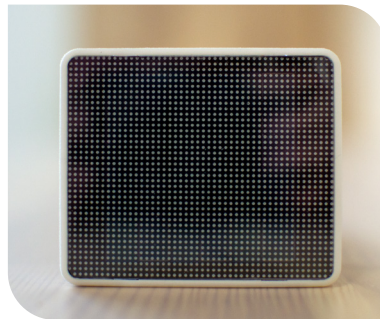
To cover the cell, it is possible to add a pattern on top. This pattern can be printed on a plastic film or a transparent sheet as shown below using different transparencies.

Another way to disguise the cell is to use a diffuser that makes the solar cell less visible. The diffuser makes the details in the solar cell less prominent.



*Checked Pattern*

Screen printed  
30% opacity  
8-15% power loss



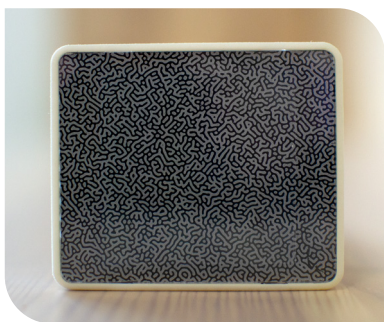
*Dotted Pattern*

Screen printed  
30% opacity  
8-15% power loss



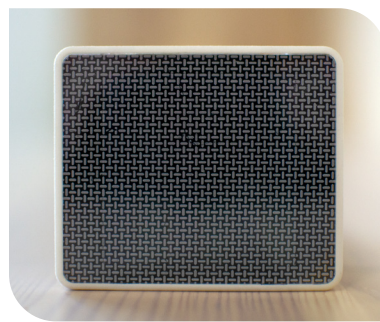
*Diffusor*

8-15% power loss



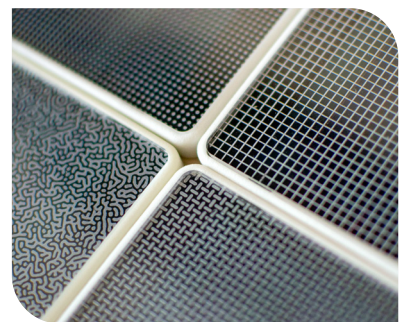
*Squiggle Pattern*

Screen printed  
30% opacity  
8-15% power loss



*Basket Weave Pattern*

Screen printed  
30% opacity  
8-15% power loss



*More pattern and diffusor options*

For more pattern designs  
and diffusors, reach out to  
[sales@epishine.com](mailto:sales@epishine.com).

*Concealing the solar cell*

## Color Matching

By masking the area around the solar cell in a color matched to that of the cell, the surface looks homogenous to the eye and makes the solar cell blend in.



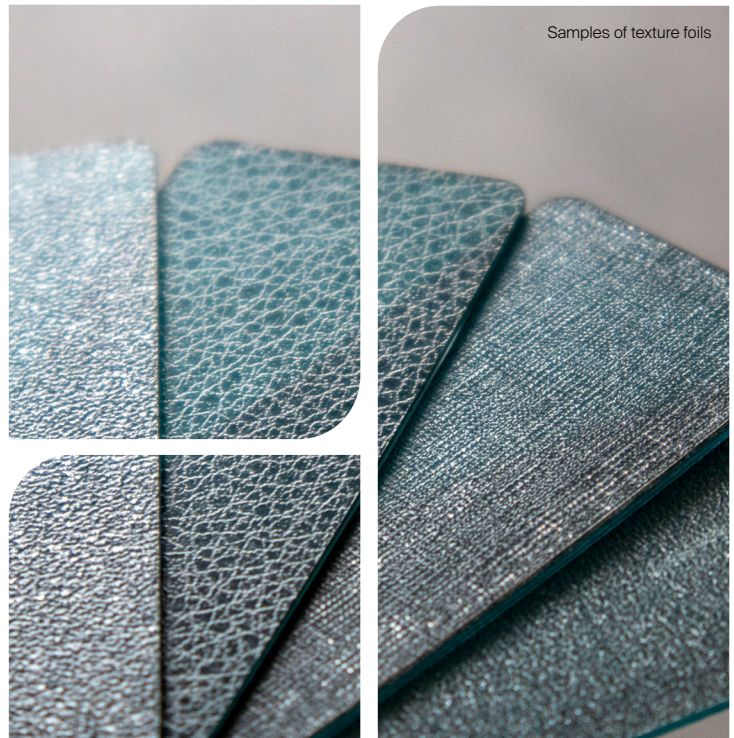
Epishine OneCell

Demo of remote control integration with color matched surface.

*Concealing the solar cell*

## Texture Foils

By using matt foil, the cell can get a satin surface. This removes the glare and gives the cell a more premium look. If the foil is bonded to the cell the powerloss is next to zero.



Samples of texture foils

*Product integration*

## Electrical Contacting

Electrical contacting of the Epishine indoor solar cells can be done in multiple ways including Nicomatic® crimp contacts, ablation patch and FPC cable. For support with contacting and other product integration inquiries, please contact [sales@epishine.com](mailto:sales@epishine.com).



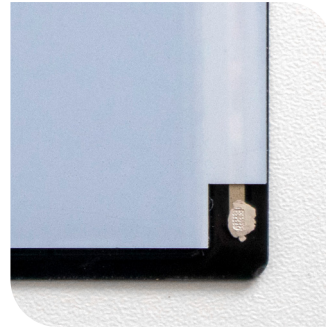
*Nicomatic® crimp contact*

Solderable crimp contact that can be soldered to your PCB or to a cable.



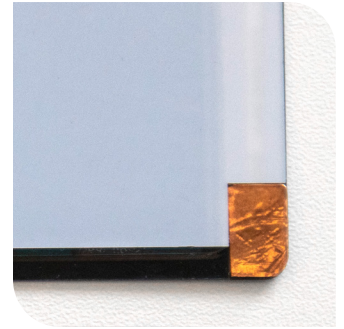
*FPC cable*

Flexible flat cable that connects directly to your PCB via a connector.



*Ablated patch*

Silver patch to connect to the PCB or FPC with conductive tapes or glue.



*Ablated patch & copper tape*

Copper tape for cables or when using pogo-pins.

*Product integration*

## Flexibility

Epishine indoor solar cells are ultra-thin and flexible meaning they can easily be bent or curved to integrate seamlessly into products.

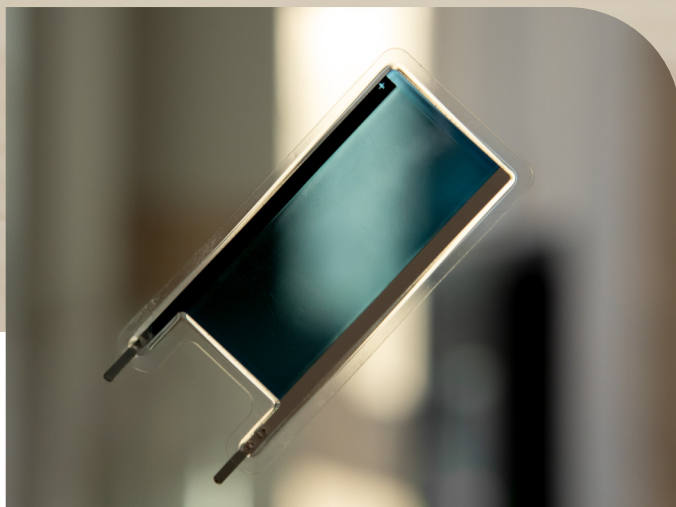




*Product integration*

## Bi-Facial

Epishine's solar cells are bi-facial, designed to capture light from both sides. This unique feature boosts performance by up to 80% compared to the specifications in our data sheet when illuminated from both sides.



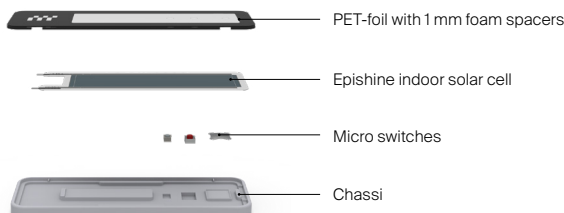
Demo of bi-facial remote control integration with the solar cell capturing light from both sides.

Epishine solar cells are also transparent, allowing light to pass through. This opens up new possibilities for integration, such as positioning the cell directly in front of a display without obstructing visibility.

*Product integration*

## Pushing Through the Solar Cell

Thanks to the thin and flexible solar cell, it can be used as a functional surface with buttons that are activated by pressing down on the cell itself. Extensive testing has shown that this functionality does not compromise the solar cell's performance, even after 550,000 presses. For detailed information on the push test, please contact [sales@epishine.com](mailto:sales@epishine.com).



Demo of remote control integration with buttons placed under the solar cell.

*Reference case*

## Elsys

*Elsys ERS Eco*

ERS Eco is a LoRaWAN® temperature and humidity sensor for the indoor environment. This sensor is your environmentally friendly option, with an organic solar cell as the only power source and an enclosure made from biodegradable material. Removing batteries from a wireless IoT device significantly reduces the environmental impact and maintenance costs.

The ERS Eco can last up to 30 days in the dark depending on the sample interval, transmit interval, data rate, and environmental factors. It can be used with a self-adapting feature that will result in lower current consumption, lower network load, and less redundant data sent. With the feature activated, the sensor will adapt the transmission rate if the measured data is unchanged.



*Reference case*

## Connected Inventions

*Connected Airwits EcoSense*

Connected AirWits EcoSense is a connected temperature and humidity metering device for real and accurate indoor air quality monitoring without batteries. It uses an energy harvesting cell as a power source and gets its power from indoor light, making it eco-friendly and maintenance free with ultra low lifetime costs.

Thanks to its dual module, it can use either worldwide Sigfox or LoRaWAN IoT-network connectivity for data transmission. The installation of the device is extremely simple procedure, and requires neither special tools nor configuration operation. Simple, connected, maintenance free, ultra low cost, powerful, accurate – the perfect solution for long term indoor temperature and humidity metering.





## Reference case

# MClimate

### *MClimate Wireless Thermostat LoRaWAN®*

MClimate Wireless Thermostat is a stand-alone thermostat powered entirely by solar energy using an organic solar panel. The device features a 2.9" e-ink screen, sensor for movement (PIR), temperature and humidity sensor, LUX sensor and 3 buttons. The user can change the target temperature and see current indoor conditions. The device sends an uplink after any event as well as periodically.

### *MClimate CO2 Display LoRaWAN®*

MClimate CO2 Display LoRaWAN® is powered entirely by solar energy using an organic solar panel and features a 2.9" e-ink screen, sensor for movement (PIR), temperature and humidity sensor, LUX sensor and NDIR CO2 sensor. The user can see the current levels of CO2 as well as historical trend. The device sends an uplink when it detects movement as well as periodically. The data from the CO2 Display can be used in any LoRaWAN® compatible system, incl. Building Management Systems to control demand-based ventilation.



### *MClimate CO2 Display lite LoRaWAN®*

Just like the MClimate CO2 Display, the lite version is equipped with temperature and humidity sensor, LUX sensor and NDIR CO2 sensor. Featuring smaller 1.54" e-ink screen the device is showing the current levels of CO2 as well as historical trends. The data from the CO2 Display lite can be used in any LoRaWAN® compatible system, incl. Building Management Systems to control demand-based ventilation. Sensor information can be exposed as datapoints in Modbus, BACnet and KNX systems through the use of a special gateway.



*A smarter way to power electronics*

The technologies of the past cannot power the future. At Epishine, we believe that the future of power is printed. By using thin, flexible solar cells produced at an unprecedented scale, any surface touched by light can capture energy.