



Wireless Power for Liquid Crystal Windows

Discover how you can use wireless power to bring power to your smart windows

LUXX Light Technology



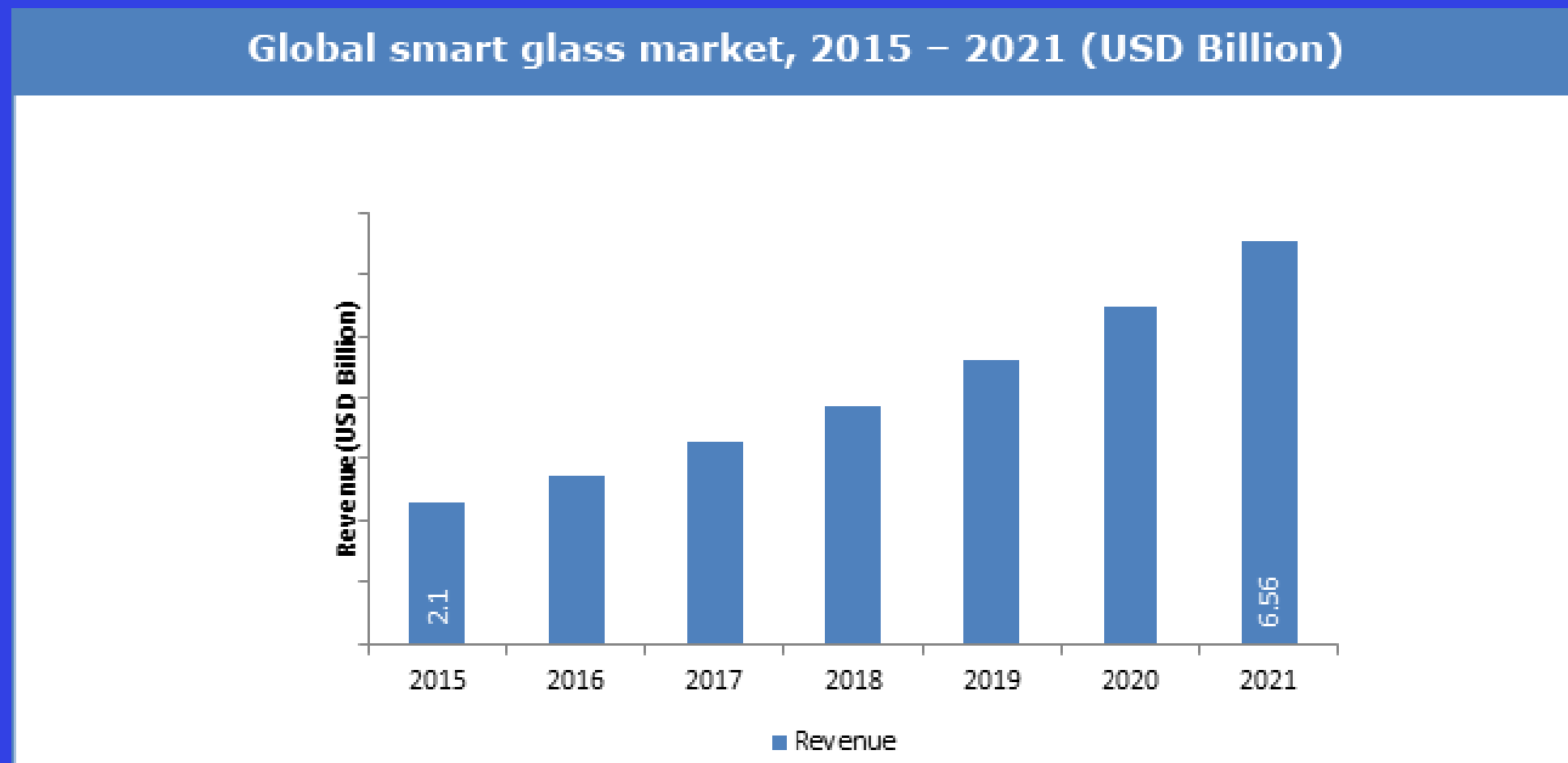
But first...

Market Trends for Smart Glass

The global smart glass market size is expected to reach USD 6.56 billion by 2021 according to a new report by Zion Research Analysis.

Rising product demand in residential and commercial buildings for better aesthetics is expected to boost the market growth over the next six years.

Architects are widely using smart technology in new buildings, which is further expected to have a positive impact on the product demand in the architectural application sector.



What is Smart Glass?

Large and open roof glazing is also part of the open and transparent construction. There, the requirements for summer thermal insulation are high and often difficult to solve. The dimmable sun protection glass guarantees summer heat protection even under large roof glazing. Smart glass offers a high level of user comfort, low air-conditioning costs and an impressive skyward view at all times in conjunction with a reduction in glare, even when the sun is at its zenith.

The advantages of dimmable glazing are obvious:

Excellent summer heat protection and a pleasant indoor climate all year round

Shading by dimming the glass instead of mechanical sun protection

Reduces the glare of the sun and offers a clear view of the outside at all times

There are no costs for maintenance and maintenance of shading systems

No or low air conditioning costs

Ideal building block for networked "Smart Buildings" Individual and automatic control

Can be integrated into the building management system



Future Proof Smart Glass with Wireless Power

Whether you're looking to get rid of a power port, remove something you don't want in the system, or advance your product from water-resistant to waterproof, wireless power is the perfect solution for you.

Wireless power supports a multitude of real-world applications with anywhere from 0 to over 50W of power transfer with an efficiency level of over 80%.

No installations, no batteries, no recharging, no breakage of power cables. The power will be there! Welcome to the world of future proof wireless power!



What is Wireless Power

Let's first define what wireless power transfer is and how it works.

As you may have guessed, wireless power transfer is the transmission of electrical energy from a power source to an electrical device without the use of cord conductors.

Since wireless charging is such a widespread need among both consumers and businesses, the technology is constantly improving and becoming more common in industries all across the board. So how does wireless power work?

Fundamentally, it uses a basic concept most engineers are very familiar with: Resonant inductive coupling. Also known as magnetic phase synchronous coupling it consists of inductive coupling where the coupling becomes stronger when the "secondary" (load-bearing) side of the loosely coupled coil resonates.



Examples of Wireless Power Applications

There are countless applications for wireless power transfer. Here are just a few examples of what companies are currently trying to achieve:

- Starbucks: phone charging stations at coffee tables
- Appliances: cordless kitchen appliances for the home
- Bosch: cordless power drills for construction sites
- Delphi: in-cabin phone charging and infotainment systems for vehicles
- IKEA: integrated furniture and lighting for entirely wireless homes



→ Problem

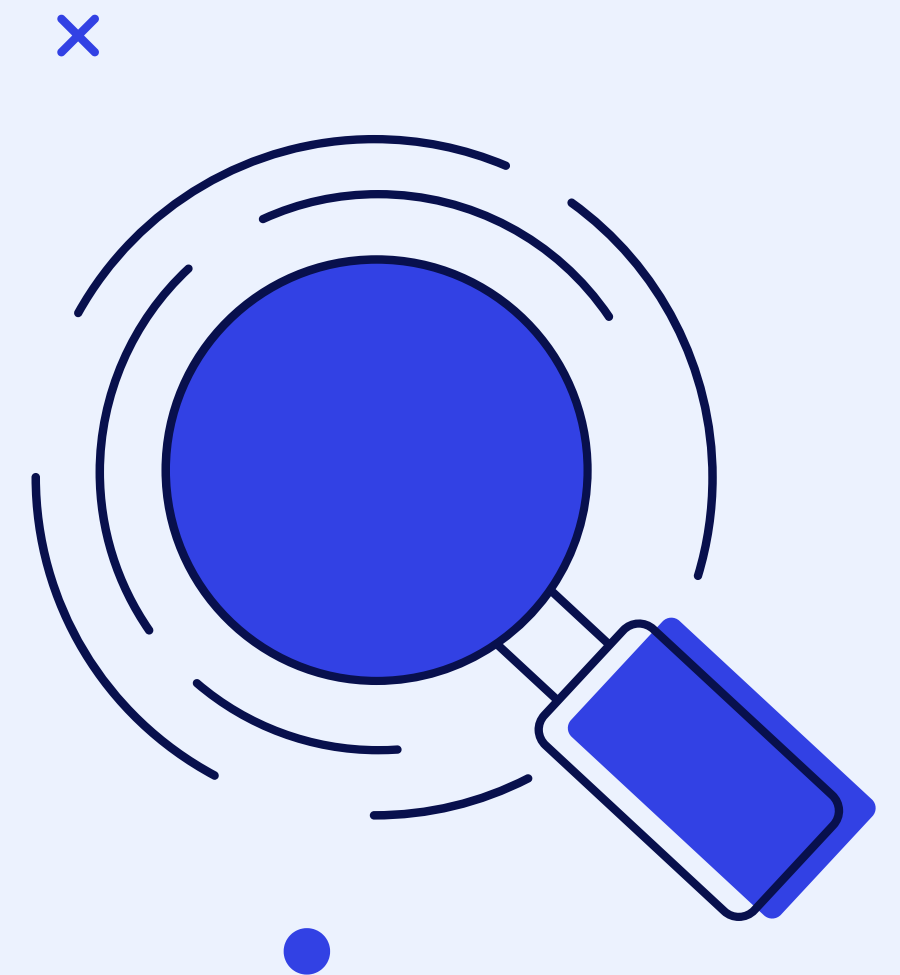
Getting power cables run to the inside of windows requires cables and an electrician.

From a cable perspective you will experience wear and tear on the cable that will lead to power failure.

This failure increase product failure rates and could be interpreted as an unreliable product.

Aside from the need of cable, certified electricians are required for the installation of the smart windows.

This adds cost to deployment while adding an additional layer of complexity to installation.



Solution

Worlds first long-range, high-efficiency wireless powering solution for smart windows.



01

All that is needed is a sender, receiver, and antennas.



02

Power is wirelessly transmitted across a 10' radius.



03

The efficiency level of transmission is over 80%.



Solution Benefits

Wireless power opens the door to flexibility and efficiency:

- **Reducing the losses:** In the power transmission grid, there can be significant losses of electricity by up to 30%.
- **Minimal maintenance:** When there are no wires, there will no need for correcting or maintaining them.
- **Improved Safety:** No wires mean, no accidents, and no unwanted disconnecting
- **Convenience:** Windows can be freely and instantly moved around without having to be unplugged and re-connected again. It does NOT need an electrician to get power inside a window.



Long Range Scalability

The wireless powering technology is easily scalable. With only one transmitter you can power:

- 1 electronic device of 70 watts at the distance of 25 centimeters. Up to 4 electronic devices of 17,6 watts at the distance of 50 centimeters
- Up to 16 electronic devices of 4,4 watts at the distance of 1 meters
- Up to 64 electronic devices of 1,1 watts at the distance of 2 meters
- Up to 256 electronic devices of 0,275 watts at the distance of 4 meters





How does it work?

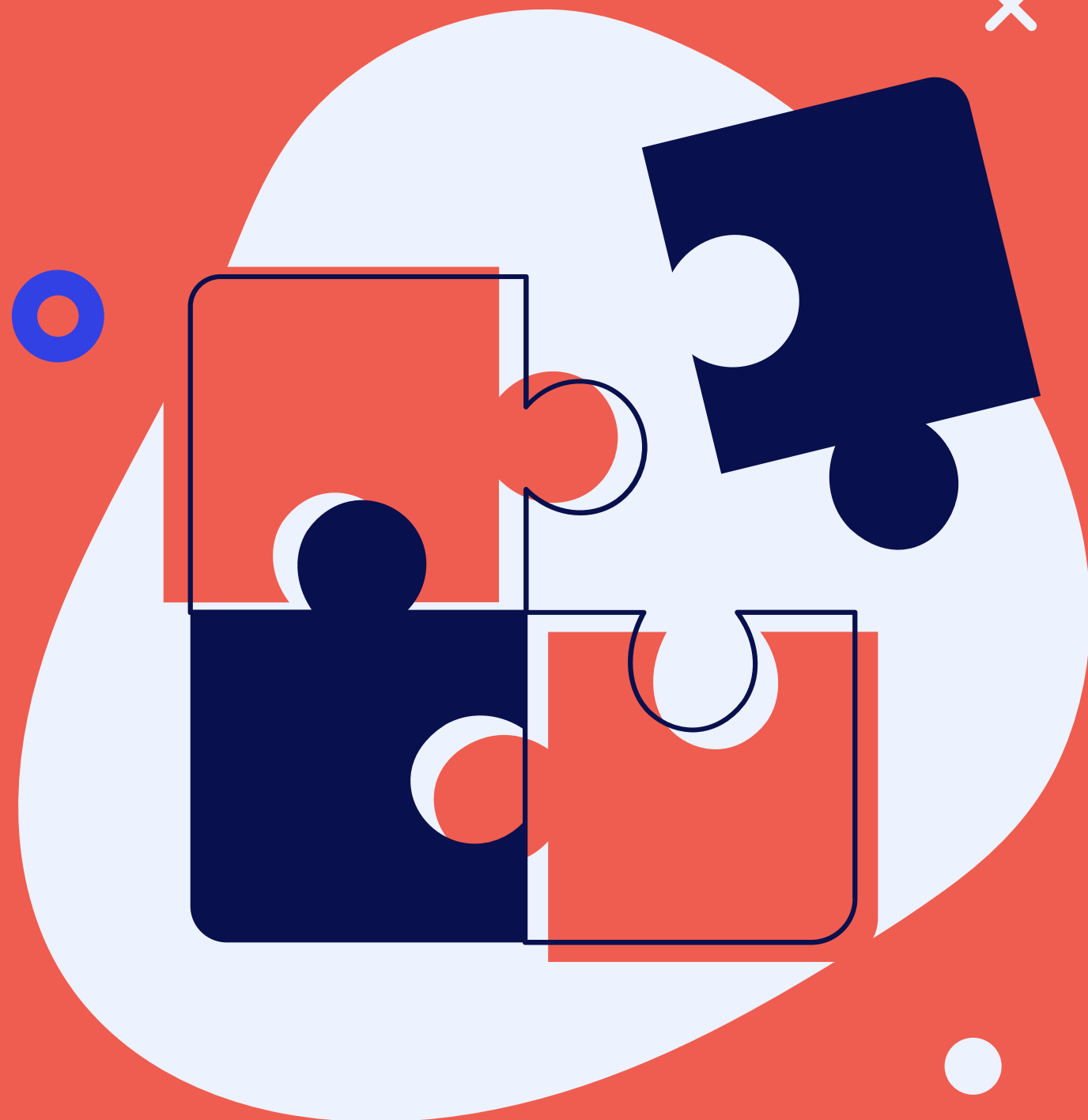
The solution consists of two simple components:

Sending Antenna

A dipole antenna that transmits the power in a 10 ft radius in all directions. Max. 50W per sender, cascadable (daisy-chainable). The size of the antenna + electronics + housing is about a picture postcard footprint, 2" high. The sender will need a 50W power supply with an output voltage of 48V DC.

Receiving Antenna

A linear antenna with max 50W power consumption per receiver, not cascadable (daisy-chainable). The size of the antenna + electronics is about a pencil. The receiving electronics can provide up to 50W in 5V DC or 12V DC or 24V DC (or any other DC voltage, but one voltage per electronic, not combinable, or universal type).



About LUXX Light Technology

Since 1996, LUXX Light Technology has been a global leader in the custom engineering and manufacturing of LED lighting solutions for the Retail Display market, Commercial Refrigeration, Shelf Lighting, and unique Profile extrusions.

In 2019 LUXX introduced the worlds thinnest LED neon rope series, the worlds first IP54 power track, and most recently released a new eShelf video display.

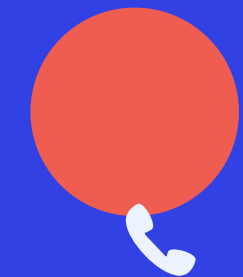


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Let's talk more!



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